



HP Pavilion 14 Notebook PC (AMD) (model numbers 14-ab000 through 14-ab099)

Maintenance and Service Guide

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Product notice

This guide describes features that are common to most models. Some features may not be available on your computer.

Not all features are available in all editions of Windows 10 or Windows 8. This computer may require upgraded and/or separately purchased hardware, drivers and/or software to take full advantage of Windows 10 or Windows 8 functionality. See <http://www.microsoft.com> for details.


The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

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Important Notice about Customer Self-Repair Parts

 **CAUTION:** Your computer includes Customer Self-Repair parts and parts that should only be accessed by an authorized service provider. See Chapter 5, "Removal and replacement procedures for Customer Self-Repair parts," for details. Accessing parts described in Chapter 6, "Removal and replacement procedures for Authorized Service Provider only parts," can damage the computer or void your warranty.

Safety warning notice


 **WARNING!** To reduce the possibility of heat-related injuries or of overheating the device, do not place the device directly on your lap or obstruct the device air vents. Use the device only on a hard, flat surface. Do not allow another hard surface, such as an adjoining optional printer, or a soft surface, such as pillows or rugs or clothing, to block airflow. Also, do not allow the AC adapter to contact the skin or a soft surface, such as pillows or rugs or clothing, during operation. The device and the AC adapter comply with the user-accessible surface temperature limits defined by the International Standard for Safety of Information Technology Equipment (IEC 60950-1).

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1 Product description

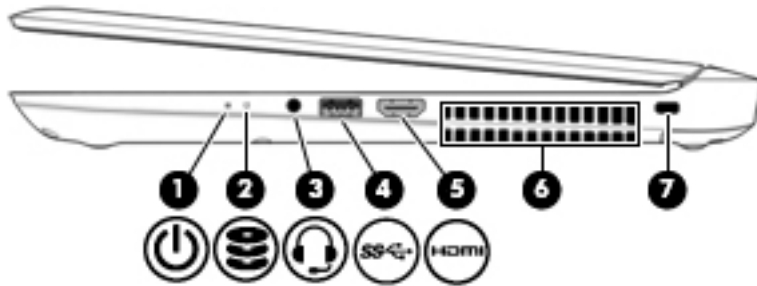
Category	Description
Product Name	HP Pavilion Notebook PC (AMD processor, model numbers 14-ab000 through 14-ab099)
Processors	<ul style="list-style-type: none">• AMD™ Quad-Core A10-8700 (1.8GHz, up to 3.2GHz), 1600-MHz/2-MB L2, Quad 15W• AMD Quad-Core A8-7410 (2.2GHz, up to 2.5GHz), 1600-MHz/2-MB L2, Quad 15W• AMD Quad-Core A6-6310 (1.8GHz, up to 2.4GHz), 1600-MHz/2-MB L2, Quad 15W• AMD Quad-Core A4-6210 (1.8GHz), 1600-MHz/2-MB L2, Quad 15W
Chipset	AMD Integrated soldered-on circuit (SOC) fusion controller hub (FCH)
Graphics	<p>Internal graphics:</p> <ul style="list-style-type: none">• AMD Radeon® R3 Graphics• AMD Radeon R4 Graphics• AMD Radeon R5 Graphics• AMD Radeon R6 Graphics <p>Switchable discrete graphics:</p> <ul style="list-style-type: none">• AMD Radeon R7 M360 (Meso-XT) with up to 2048-MB of dedicated video memory (256Mx16 DDR3 900-MHz × 4 PCs, 1-GHz bridge to 900-MHz), TDP 25W <p>Support dual graphics:</p> <ul style="list-style-type: none">• AMD Radeon R8 M3650DX Dual Graphics <p>Support HD Decode, DX11, and HDMI</p> <p>Support PX 7</p>
Panel	<ul style="list-style-type: none">• 14.0" [35.5 cm] (1366x768), high definition (eDP), light-emitting diode (LED), BrightView, 16:9 UltraWide Aspect Ratio, 220 nits• 14.0" [35.5 cm] (1366x768), high definition (eDP), light-emitting diode (LED), BrightView, 16:9 UltraWide Aspect Ratio, touch on panel (TOP), 200 nits <p>Touch solution with flush glass, multitouch enabled</p> <p>Supports low-voltage differential signaling (LVDS) (co-layout with eDP 1.2)</p>
Memory	16384 MB (8192 MB × 2) 12288 MB (8192 MB + 4096 MB) 8192 MB (8192 MB × 1) 8192 MB (4096 MB × 2) 6144 MB (2048 MB × 1 + 4096 MB × 1) 4096 MB (4096 MB × 1) 4096 MB (2048 MB × 2)
Hard drive	2 TB (5400) 9.5mm 1 TB (5400) 9.5mm

Category	Description
	750 GB (5400) 9.5mm 500 GB (5400) 7mm 1 TB (5400) + 8 GB NAND Hybrid HDD 9.5mm
Optical drive	DVD±RW Double-Layer SuperMulti drive Support for Zero-Power ODD Support for M-disc Support for external 9.5 mm tray load, SATA, DVD±RW DL SuperMulti drive
Audio and video	Integrated HP TrueVision camera: HD (1280x720 by 30 frames/sec), fixed (no tilt), with activity light Dual digital microphones with appropriate software - echo cancellation, noise suppression Dual speakers
Ethernet	Integrated 10/100 NIC
Wireless	Integrated Wireless options with single antenna: <ul style="list-style-type: none"> • Broadcom BCM43142 802.11 b/g/n 1x1 Wi-Fi + Bluetooth 4.0 Combo Adapter • Intel 3165NGWG 1 ac 1×1 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 WW Combo Adapter • Intel Dual Band Wireless-AC 3160 802.11 ac 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter • Realtek RTL8188EE 802.11b/g/n Wi-Fi Adapter
External media cards	HP Multi-Format Digital Media Card Reader with push-push technology. Supports SD/SDHC/SDXC.
Ports	AC adapter: HP Smart pin plug (4.5mm barrel) Audio: one combo audio-out (headphone)/audio-in (microphone) jack HDMI: v. 1.4 supporting up to 1080p, 1920x1080 at 60Hz RJ-45/Ethernet (2) USB 3.0 (1 on the left side, 1 on the right side) (1) USB 2.0 (left side)
Keyboard/pointing devices	<ul style="list-style-type: none"> • Full size standard textured island-style keyboard with numeric keypad • Full size standard dura coat island-style backlit keyboard with numeric keypad Clickpad requirements: <ul style="list-style-type: none"> • Multitouch gestures enabled • Support for Windows 8.1 Modern TouchPad gestures • Taps enabled as default
Power requirements	Supports the following Smart AC power adapters: <ul style="list-style-type: none"> • 45 W • 65 W • 65 W Slim Travel adapter 1 meter power cord Supports the following batteries: <ul style="list-style-type: none"> • 4-cell battery, 48-Whr, Li-ion battery

Category	Description
	<ul style="list-style-type: none">• 4-cell battery, 41-Whr, Li-ion battery
Security	Security cable slot Trusted platform module (TPM) 2.0 support
Operating system	Preinstalled: <ul style="list-style-type: none">• Windows 10• Windows 8.1• Ubuntu• FreeDOS 2.0 (not applicable on computer models equipped with a TouchScreen display assembly)
Serviceability	End user replaceable parts: <ul style="list-style-type: none">• Battery• AC Adapter

2 External component identification

Right side



Component	Description
(1) Power light	<ul style="list-style-type: none">On: The computer is on.Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other components.Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(2) Hard drive/optical drive light	<ul style="list-style-type: none">Blinking white: The hard drive or optical drive is being accessed.Amber: HP 3D DriveGuard has temporarily parked the hard drive.
(3) Audio-out (headphone)/Audio-in (microphone) jack	<p>Connects optional powered stereo speakers, headphones, earbuds, a headset, or a television audio cable. Also connects an optional headset microphone. This jack does not support optional microphone-only devices.</p> <p>NOTE: When a device is connected to the jack, the computer speakers are disabled.</p> <p>NOTE: Be sure that the device cable has a 4-conductor connector that supports both audio-out (headphone) and audio-in (microphone).</p> <p>WARNING! To reduce the risk of personal injury, adjust the volume before putting on headphones, earbuds, or a headset. For additional safety information, refer to the <i>Regulatory, Safety, and Environmental Notices</i>.</p> <p>To access this document:</p> <p>Windows 10:</p> <ol style="list-style-type: none">Type <code>support</code> in the taskbar search box, and then select the HP Support Assistant app. <p>– or –</p> <p>Click the question mark icon in the taskbar.</p>

-
2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.

Windows 8:

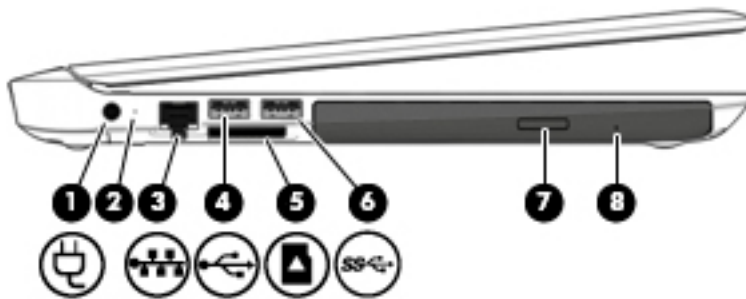
- ▲ From the Start screen, type `support`, and then select the **HP Support Assistant** app.

– or –

From the Windows desktop, click the question mark icon in the notification area, at the far right of the taskbar.


(4)	USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5)	HDMI port	Connects an optional video or audio device, such as a high-definition television, any compatible digital or audio component, or a high-speed High-Definition Multimedia Interface (HDMI) device.
(6)	Vents (2)	Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(7)	Security cable slot	Attaches an optional security cable to the computer. NOTE: The security cable is designed to act as a deterrent, but it may not prevent the computer from being mishandled or stolen.

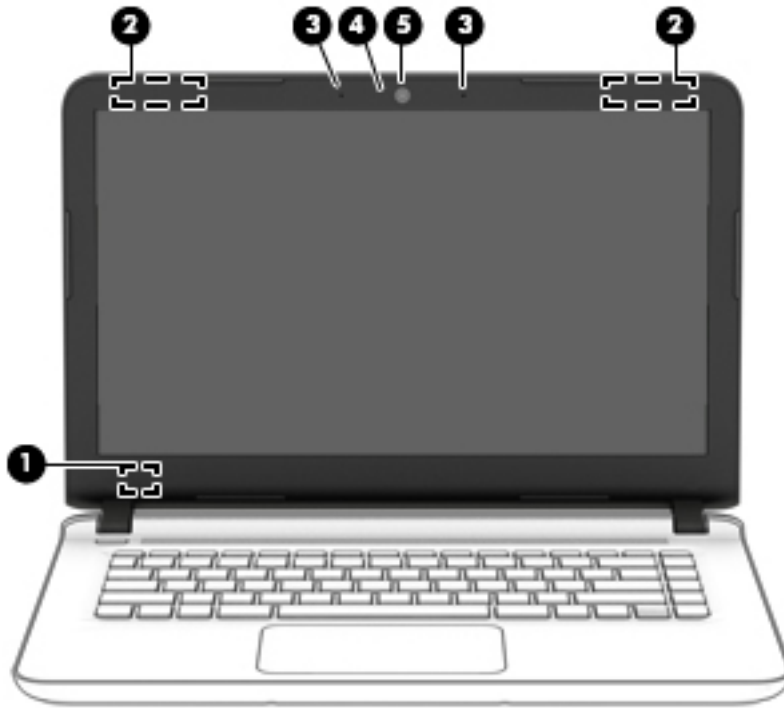
Left side



Component	Description
(1) Power connector	Connects an AC adapter.
(2) AC adapter/battery light	<ul style="list-style-type: none"> White: The AC adapter is connected and the battery is fully charged. Blinking white: The AC adapter is disconnected and the battery has reached a low battery level. Amber: The AC adapter is connected and the battery is charging. Off: The battery is not charging.
(3) RJ-45 (network) jack/status lights	Connects a network cable. <ul style="list-style-type: none"> White: The network is connected. Amber: Activity is occurring on the network.
(4) USB 2.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(5) Memory card reader	Reads optional memory cards that enable you to store, manage, share or access information. <p>To insert a card:</p> <ol style="list-style-type: none"> Hold the card label-side up, with connectors facing the computer. Insert the card into the slot, and then push in on the card until it is firmly seated. <p>To remove a card:</p> <ul style="list-style-type: none"> Press in on the card until it pops out.
(6) USB 3.0 port	Connects an optional USB device, such as a keyboard, mouse, external drive, printer, scanner or USB hub.
(7) Optical drive eject button	Releases the disc tray.
(8) Optical drive	Depending on your computer model, reads an optical disc or reads and writes to an optical disc. <p>NOTE: For disc compatibility information, go to the Help and Support web page. Follow the web page instructions to select your computer model. Select Drivers & Downloads, and then follow the on-screen instructions.</p>

Display

 **NOTE:** Refer to the illustration that most closely matches your computer.

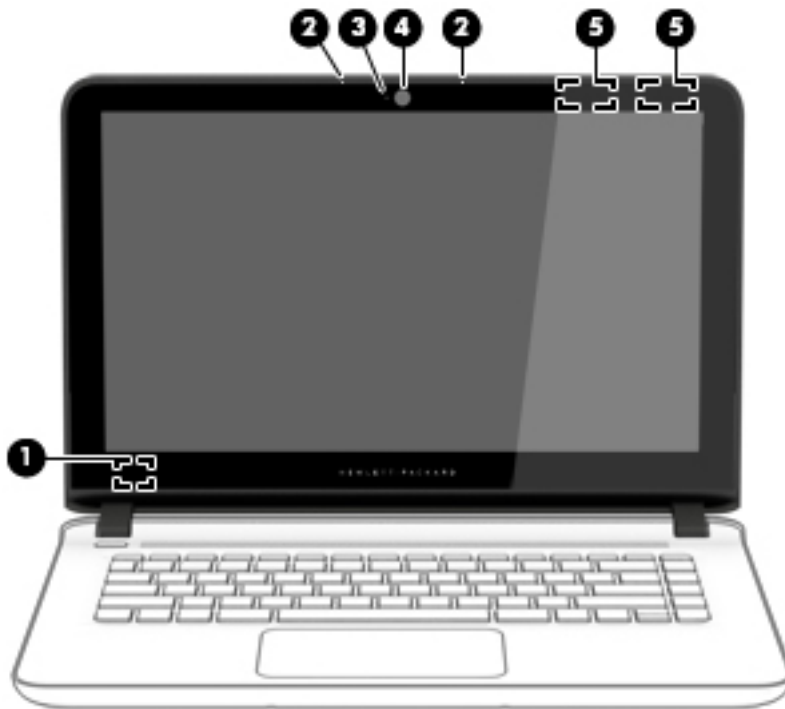


Component	Description
(1) Internal display switch	Turns off the display and initiates Sleep if the display is closed while the power is on. NOTE: The internal display switch is not visible from the outside of the computer.
(2) WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).
(3) Internal microphones (2)	Record sound.
(4) Webcam light	On: The webcam is in use.
(5) Webcam	Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. To use the webcam: Windows 10: Type <code>camera</code> in the taskbar search box, and then select Camera . Windows 8: ▲ To use the webcam or 3D camera: From the Start screen, type <code>camera</code> , and then select Camera from the list of applications.

NOTE: The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this document:

Component	Description
Windows 10:	
1.	Type <code>support</code> in the taskbar search box, and then select the HP Support Assistant app. – or – Click the question mark icon in the taskbar.
2.	Select My PC , select the Specifications tab, and then select User Guides .
Windows 8:	
▲	Select the HP Support Assistant app on the Start screen, select My computer , and then select User guides .



Component	Description
(1)	Internal display switch Turns off the display and initiates Sleep if the display is closed while the power is on. NOTE: The internal display switch is not visible from the outside of the computer.
(2)	Internal microphones (2) Record sound.
(3)	Webcam light On: The webcam is in use.
(4)	Webcam Records video and captures photographs. Some models allow you to video conference and chat online using streaming video. To use the webcam: Windows 10: Type <code>camera</code> in the taskbar search box, and then select Camera . Windows 8:

Component	Description
	<p>▲ To use the webcam or 3D camera:</p> <p>From the Start screen, type <code>camera</code>, and then select Camera from the list of applications.</p>
(5) WLAN antennas*	Send and receive wireless signals to communicate with wireless local area networks (WLANs).

NOTE: The antennas are not visible from the outside of the computer. For optimal transmission, keep the areas immediately around the antennas free from obstructions. For wireless regulatory notices, see the section of the *Regulatory, Safety, and Environmental Notices* that applies to your country or region.

To access this document:

Windows 10:

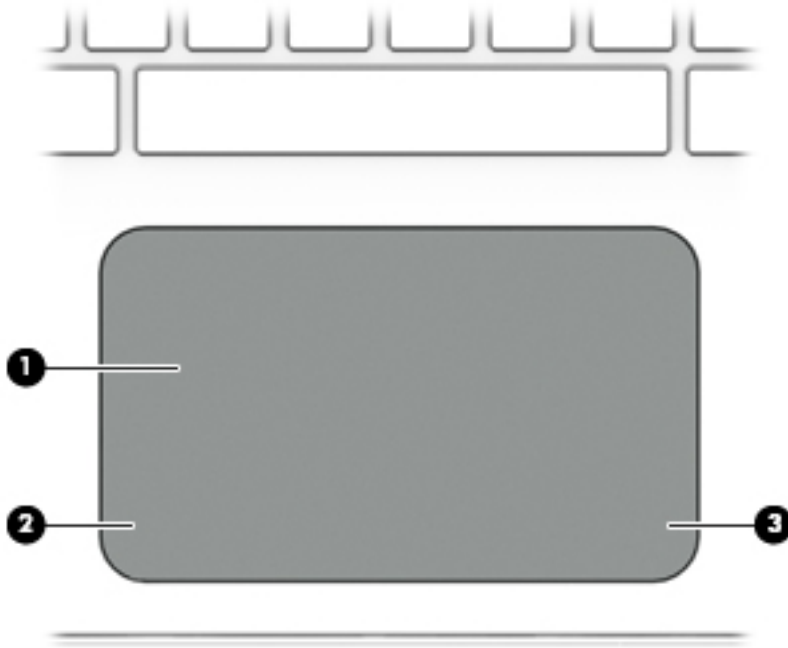
1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
 - or –
 - Click the question mark icon in the taskbar.
2. Select **My PC**, select the **Specifications** tab, and then select **User Guides**.

Windows 8:

▲ Select the **HP Support Assistant** app on the Start screen, select **My computer**, and then select **User guides**.

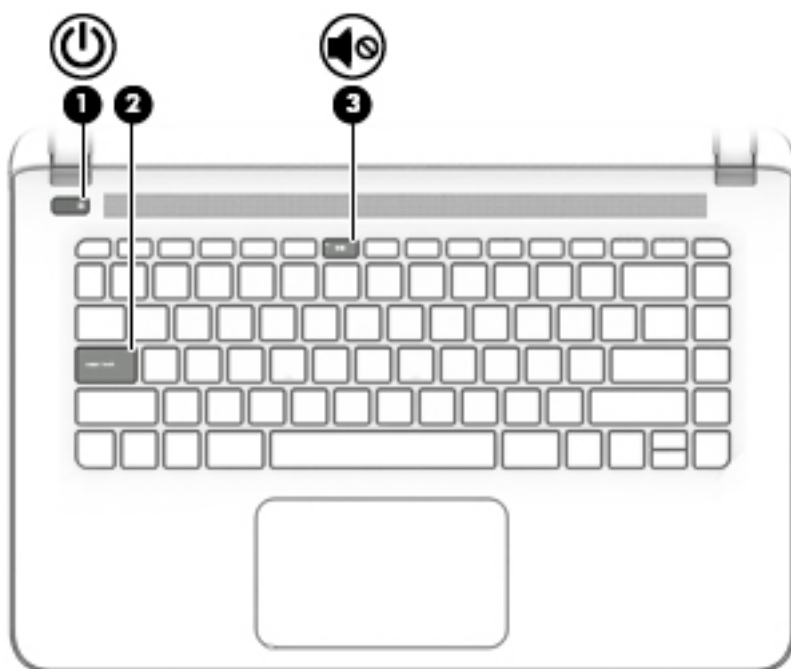
Top

TouchPad



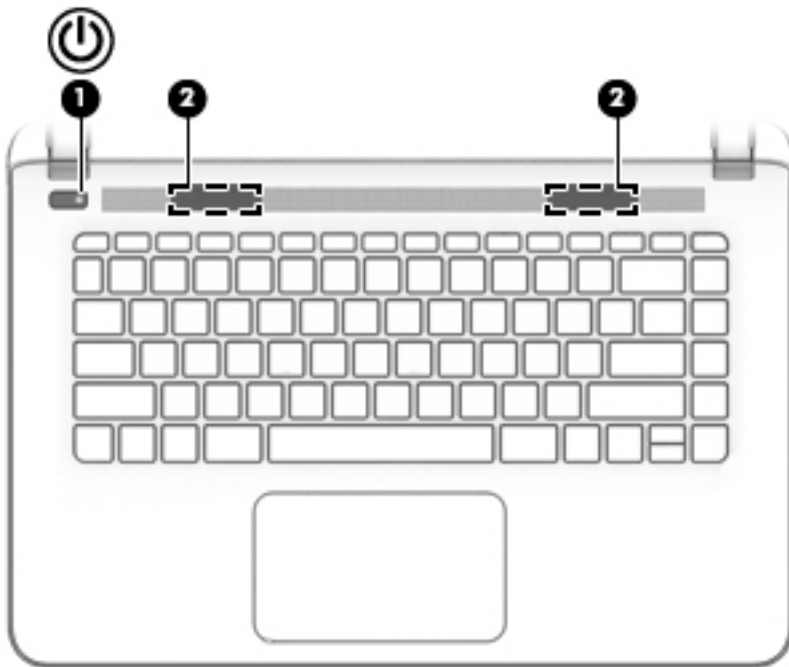
Component	Description
(1)	TouchPad zone Reads your finger gestures to move the pointer or activate items on the screen.
(2)	Left TouchPad button Functions like the left button on an external mouse.
(3)	Right TouchPad button Functions like the right button on an external mouse.

Lights



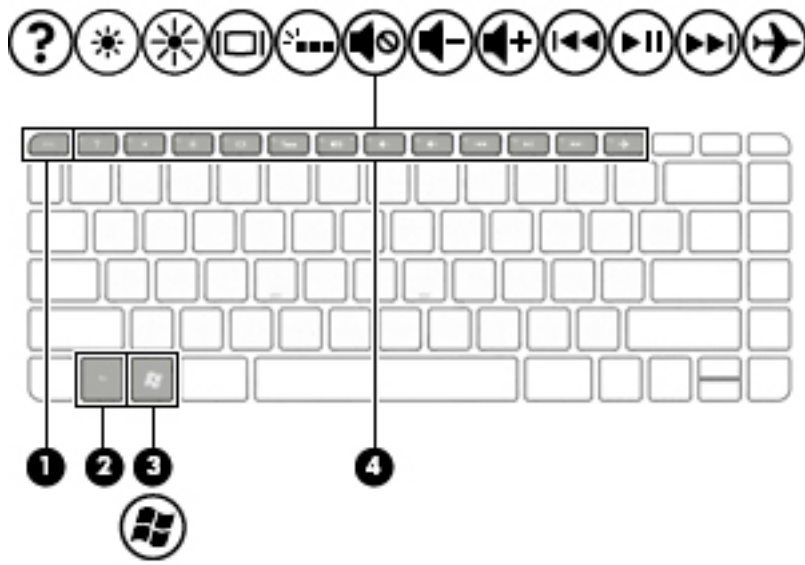
Component	Description
(1) Power light	<ul style="list-style-type: none">• On: The computer is on.• Blinking: The computer is in the Sleep state, a power-saving state. The computer shuts off power to the display and other unneeded components.• Off: The computer is off or in Hibernation. Hibernation is a power-saving state that uses the least amount of power.
(2) Caps lock light	On: Caps lock is on, which switches the keys to all capital letters.
(3) Mute light	<ul style="list-style-type: none">• Amber: Computer sound is off.• Off: Computer sound is on.

Buttons, speakers, and fingerprint reader (select models only)



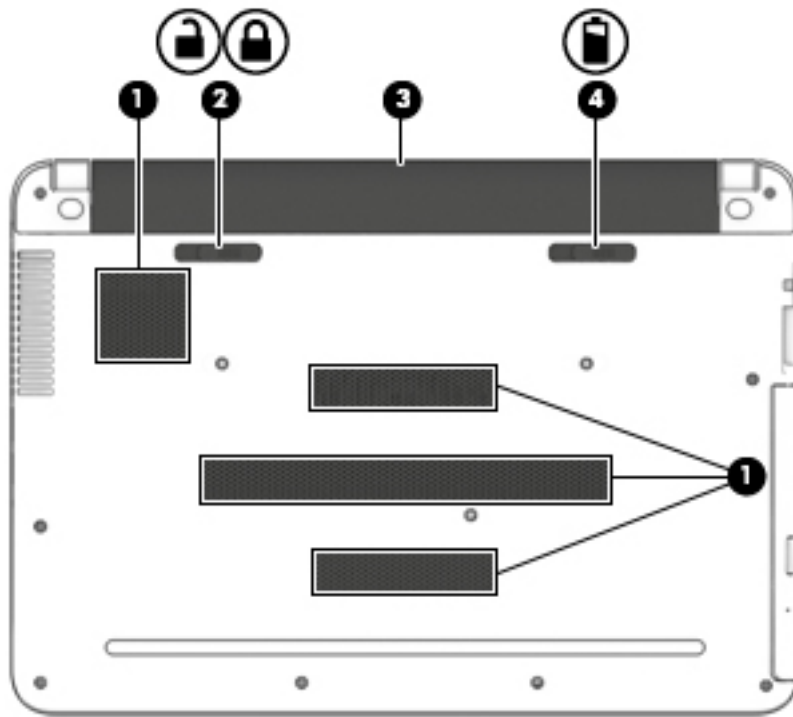
Component	Description
(1) Power button	<ul style="list-style-type: none">• When the computer is off, press the button to turn on the computer.• When the computer is on, press the button briefly to initiate Sleep.• When the computer is in the Sleep state, press the button briefly to exit Sleep.• When the computer is in Hibernation, press the button briefly to exit Hibernation. <p>CAUTION: Pressing and holding down the power button will result in the loss of unsaved information.</p> <p>If the computer has stopped responding and Windows shutdown procedures are ineffective, press and hold the power button down for at least 5 seconds to turn off the computer.</p>
(2) Speakers (2)	Produce sound.

Keys



Component	Description
(1) esc key	Displays system information when pressed in combination with the fn key.
(2) fn key	Displays system information when pressed in combination with the esc key.
(3) Windows key	Displays the Windows Start menu.
(4) Action keys	Execute frequently used system functions. NOTE: On select models, the f5 action key turns the radiance backlight keyboard feature off or on.

Bottom



Component		Description
(1)	Vents (4)	Enable airflow to cool internal components. NOTE: The computer fan starts up automatically to cool internal components and prevent overheating. It is normal for the internal fan to cycle on and off during routine operation.
(2)	Battery lock	Locks the battery in the battery bay.
(3)	Battery bay	Holds the battery.
(4)	Battery release latch	Releases the battery.

Locating system information

Important system information is located on the bottom edge of the tablet or on the keyboard base. You may need the information when travelling internationally or when you contact support:

(1): Model name

(2): Serial number

(3): Product number



(4): Warranty period

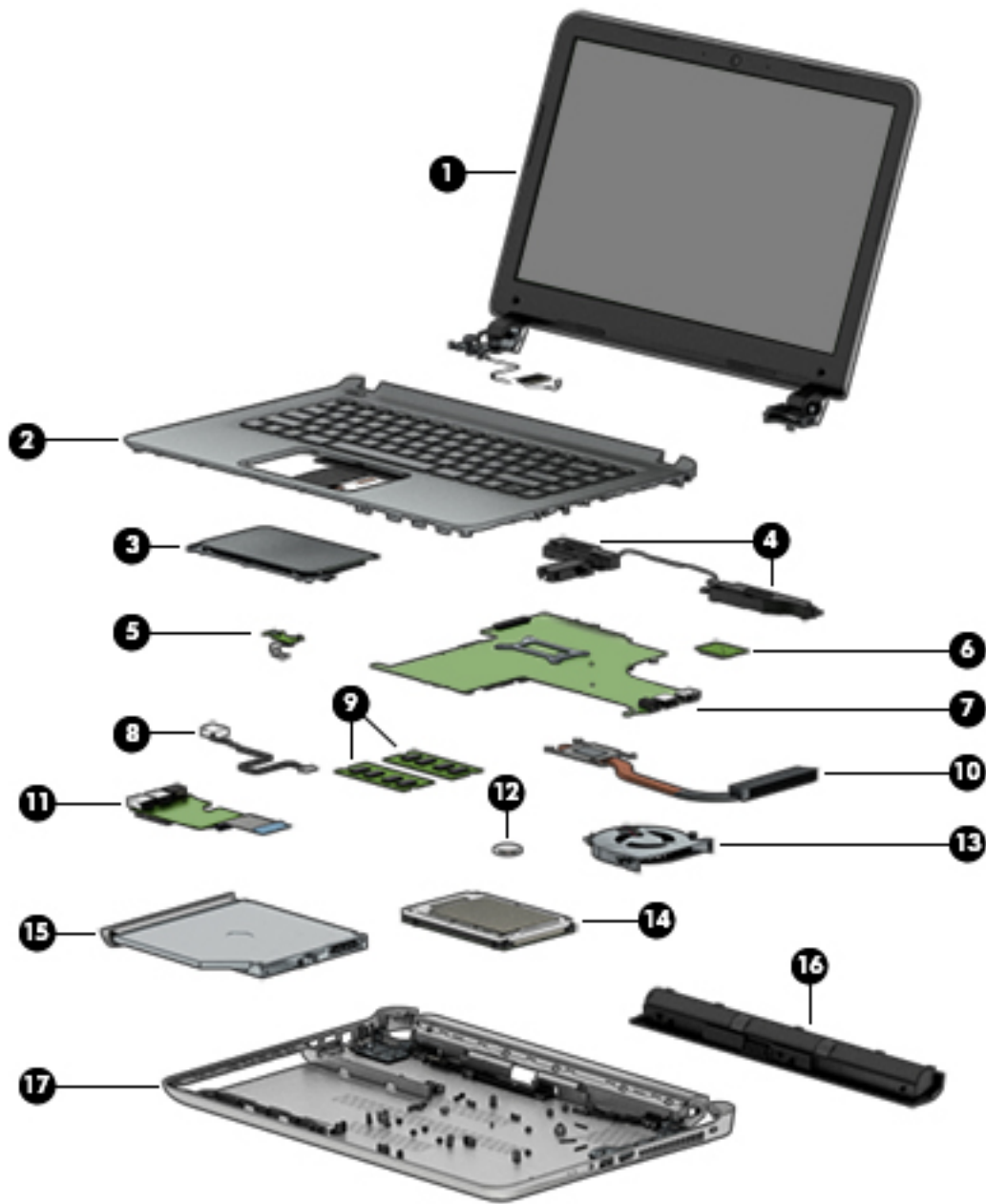
(5): Model number

Using Windows, briefly press the **fn+esc** key combination to display the System Information screen, which provides the product name and serial number of your computer, as well as information about the memory, processor, BIOS, and keyboard.

3 Illustrated parts catalog

Computer major components

-
-  **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.
 -  **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Locating system information on page 15](#) for details.
-



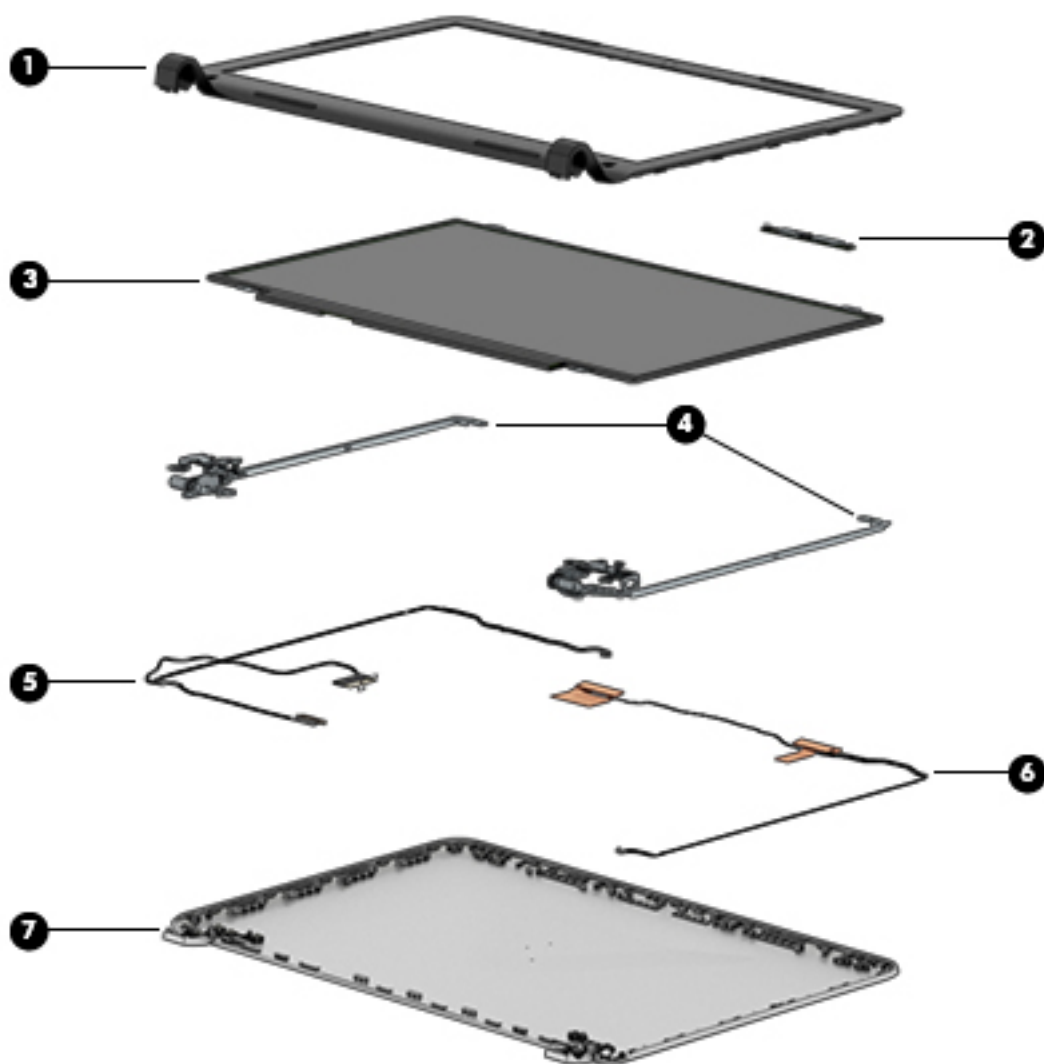
Item	Component	Spare part number
(1)	Display assembly: For display assembly spare part information for non-TouchScreen models, see Display assembly (non-TouchScreen) (select models only) on page 61 . For TouchScreen models, see Display assembly (TouchScreen) (select models only) on page 66	
(2)	Keyboard/top cover:	
	For use in Canada	806756-DB1
	For use in Latin America	806756-161
	For use in the United States	806756-001
	For use in Canada (with backlight)	806757-DB1
	For use in the United States (with backlight)	806757-001

Item	Component	Spare part number
(3)	TouchPad (includes cables)	811580-001
(4)	Speakers	806755-001
(5)	Power button board (includes cable)	806749-001
(6)	WLAN module:	
	Broadcom BCM43142 802.11 b/g/n 1×1 Wi-Fi + Bluetooth 4.0 Combo Adapter	792608-005
	Intel 3165NGWG 1 ac 1×1 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 WW Combo Adapter	806723-005
	Intel Dual Band Wireless-AC 3160 802.11 ac 1×1 WiFi + Bluetooth 4.0 Combo Adapter	784644-005
	Realtek RTL8188EE 802.11b/g/n Wi-Fi Adapter	792609-005
(7)	System board (includes processor and replacement thermal material):	
	Equipped with an AMD A10–8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with up to 2.0-GB of discrete memory, and the Windows 10 or Windows 8 Professional operating system	806765-601
	Equipped with an AMD A10–8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with up to 2.0-GB of discrete memory, and the Windows 10 or Windows 8 Standard operating system	806765-501
	Equipped with an AMD A10–8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with up to 2.0-GB of discrete memory, and a non-Windows operating system	806765-001
	Equipped with an AMD A10–8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Professional operating system	806764-601
	Equipped with an AMD A10–8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	806764-501
	Equipped with an AMD A10–8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	806764-001
	Equipped with an AMD A8–7410 2.20-GHz (up to 2.50-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Professional operating system	810972-601
	Equipped with an AMD A8–7410 2.20-GHz (up to 2.50-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	810972-501
	Equipped with an AMD A8–7410 2.20-GHz (up to 2.50-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	810972-001
	Equipped with an AMD A6–6310 1.80-GHz (up to 2.40-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	806763-501
	Equipped with an AMD A6–6310 1.80-GHz (up to 2.40-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	806763-001
	Equipped with an AMD A4–6210 1.80-GHz processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	806762-501

Item	Component	Spare part number
	Equipped with an AMD A4–6210 1.80-GHz processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	806762-001
(8)	Power connector cable	806746-001
(9)	Memory modules (2, PC3, 12800, 1600):	
	8 GB	693374-005
	4 GB	691740-005
	2 GB	691739-005
(10)	Heat sink (includes replacement thermal material):	
	For use only with computer models equipped with an AMD A10 processor and a graphics subsystem with discrete memory	809105-001
	For use only with computer models equipped with an AMD A8/A6/A4 processor and a graphics subsystem with UMA memory	806759-001
	For use only with computer models equipped with an AMD A10 processor and a graphics subsystem with UMA memory	809104-001
(11)	USB connector board (includes cable)	806750-001
(12)	RTC battery	811080-001
(13)	Fan	806747-001
(14)	Hard drive (does not include the hard drive bracket, connector cable, isolators, or screws. These components are included in the Hard Drive Hardware Kit, spare part number 806751-001):	
	2 TB, 5400 rpm, 9.5mm	801808-005
	1 TB, 5400 rpm, 9.5mm	778192-005
	750 GB, 5400 rpm, 9.5mm	778190-005
	500 GB, 5400 rpm, 7mm/9.5mm	778186-005
	1 TB, 5400 rpm + 8 GB NAND Hybrid HDD, 9.5mm	731999-005
	Hard Drive Hardware Kit (not illustrated, includes the hard drive bracket, connector cable, isolators, and screws)	806751-001
(15)	DVD±RW Double-Layer SuperMulti Drive:	
	In blizzard white finish	810325-001
	In cobalt blue finish	810322-001
	In natural silver finish	810320-001
	In pretty pink finish	810323-001
	In “TKB” finish	810977-001
	In sunset red finish	810321-001
	In violet purple finish	810324-001
(16)	Battery:	
	4–cell, 41–Whr, 2.8–Ah, Li-ion	800049-001

Item	Component	Spare part number
	4-cell, 48-WHr, 2.8-AH, Li-ion	800050-001
(17)	Base enclosure:	
	In blizzard white finish	806737-001
	In cobalt blue finish	806740-001
	In natural silver finish	806738-001
	In pretty pink finish	806741-001
	In "TKB" finish	810976-001
	In sunset red finish	806739-001
	In violet purple finish	806742-001
	Bottom corner cover (not illustrated)	806753-001

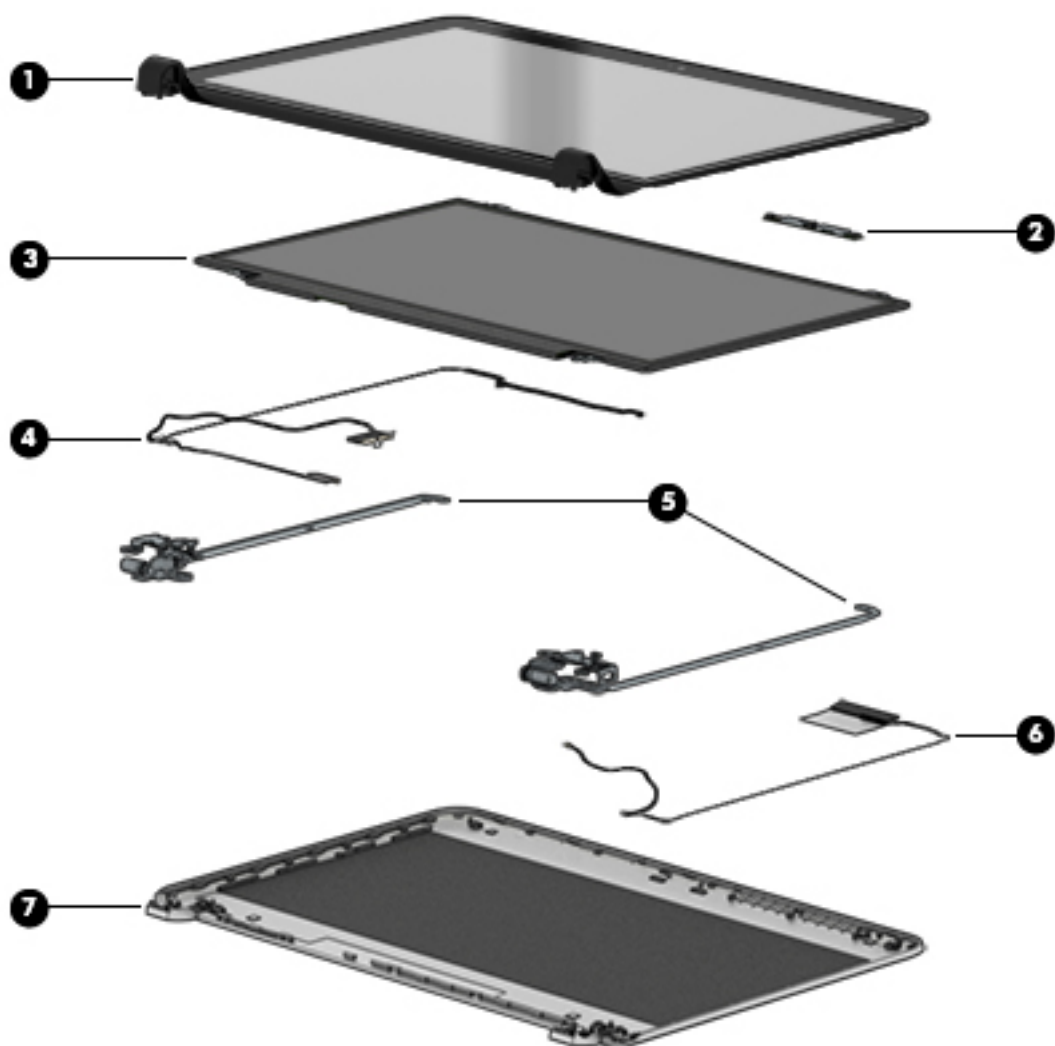
Display assembly subcomponents (non-TouchScreen models only)



Item	Component	Spare part number
(1)	Display bezel	806744-001
(2)	Webcam/microphone module	806758-001
(3)	Display panel (14 in, LED, HD, BrightView SVA display panel)	806766-001
(4)	Display hinges	806748-001
(5)	Display panel cable	806745-001
(6)	WLAN Antenna Kit (includes transceiver and cable)	806731-001
(7)	Display back cover:	
	In blizzard white finish	806737-001

Item	Component	Spare part number
	In cobalt blue finish	806734-001
	In natural silver finish	806732-001
	In pretty pink finish	806735-001
	In sunset red finish	806733-001
	In "TKB" finish	810974-001
	In violet purple finish	806736-001

Display assembly subcomponents (TouchScreen select models only)



Item	Component	Spare part number
(1)	Display bezel	806744-001
(2)	Webcam/microphone module	806758-001
(3)	Display panel (14 in, LED, HD, BrightView SVA, TouchScreen display panel)	811079-001
(4)	Display panel cable	811584-001
(5)	Display hinges	806748-001
(6)	WLAN Antenna Kit (includes transceiver and cable)	806731-001
(7)	Display enclosure:	
	In blizzard white finish	818391-001

Item	Component	Spare part number
	In cobalt blue finish	818388-001
	In natural silver finish	818386-001
	In pretty pink finish	818389-001
	In sunset red finish	818387-001
	In "TKB" finish	818392-001
	In violet purple finish	818390-001

Miscellaneous parts

Component	Spare part number
HP Smart AC Adapter:	
65-W PFC RC V EM 3-wire HP Smart AC adapter (for use only in India)	710412-001
45-W PFC RC V 3-wire HP Smart AC adapter (for use in all countries and regions except India)	741727-001
HDMI to VGA adapter	701943-001
Power cord (3-pin, black, 1.83-m):	
For use in Argentina	755530-D01
For use in Italy	755530-061
For use in North America	755530-001
Rubber Kit	806754-001
Screw Kit	806761-001

4 Removal and replacement procedures preliminary requirements


Tools required

You will need the following tools to complete the removal and replacement procedures:


- Flat-bladed screwdriver
- Magnetic screwdriver
- Phillips P0 and P1 screwdrivers

Service considerations

The following sections include some of the considerations that you must keep in mind during disassembly and assembly procedures.

 **NOTE:** As you remove each subassembly from the computer, place the subassembly (and all accompanying screws) away from the work area to prevent damage.

Plastic parts

 **CAUTION:** Using excessive force during disassembly and reassembly can damage plastic parts. Use care when handling the plastic

Cables and connectors

⚠ CAUTION: When servicing the computer, be sure that cables are placed in their proper locations during the reassembly process. Improper cable placement can damage the computer.

Cables must be handled with extreme care to avoid damage. Apply only the tension required to unseat or seat the cables during removal and insertion. Handle cables by the connector whenever possible. In all cases, avoid bending, twisting, or tearing cables. Be sure that cables are routed in such a way that they cannot be caught or snagged by parts being removed or replaced. Handle flex cables with extreme care; these cables tear easily.

Drive handling

⚠ CAUTION: Drives are fragile components that must be handled with care. To prevent damage to the computer, damage to a drive, or loss of information, observe these precautions:

Before removing or inserting a hard drive, shut down the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.

Before handling a drive, be sure that you are discharged of static electricity. While handling a drive, avoid touching the connector.

Before removing a diskette drive or optical drive, be sure that a diskette or disc is not in the drive and be sure that the optical drive tray is closed.

Handle drives on surfaces covered with at least one inch of shock-proof foam.

Avoid dropping drives from any height onto any surface.

Avoid exposing an internal hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing an internal hard drive to products that have magnetic fields, such as monitors or speakers.

Avoid exposing a drive to temperature extremes or liquids.

If a drive must be mailed, place the drive in a bubble pack mailer or other suitable form of protective packaging and label the package “FRAGILE.”

Grounding guidelines

Electrostatic discharge damage

Electronic components are sensitive to electrostatic discharge (ESD). Circuitry design and structure determine the degree of sensitivity. Networks built into many integrated circuits provide some protection, but in many cases, ESD contains enough power to alter device parameters or melt silicon junctions.

A discharge of static electricity from a finger or other conductor can destroy static-sensitive devices or microcircuitry. Even if the spark is neither felt nor heard, damage may have occurred.

An electronic device exposed to ESD may not be affected at all and can work perfectly throughout a normal cycle. Or the device may function normally for a while, then degrade in the internal layers, reducing its life expectancy.

CAUTION: To prevent damage to the computer when you are removing or installing internal components, observe these precautions:

Keep components in their electrostatic-safe containers until you are ready to install them.

Before touching an electronic component, discharge static electricity by using the guidelines described in this section.

Avoid touching pins, leads, and circuitry. Handle electronic components as little as possible.

If you remove a component, place it in an electrostatic-safe container.

The following table shows how humidity affects the electrostatic voltage levels generated by different activities.

CAUTION: A product can be degraded by as little as 700 V.

Typical electrostatic voltage levels			
Event	Relative humidity		
	10%	40%	55%
Walking across carpet	35,000 V	15,000 V	7,500 V
Walking across vinyl floor	12,000 V	5,000 V	3,000 V
Motions of bench worker	6,000 V	800 V	400 V
Removing DIPs from plastic tube	2,000 V	700 V	400 V
Removing DIPs from vinyl tray	11,500 V	4,000 V	2,000 V
Removing DIPs from Styrofoam	14,500 V	5,000 V	3,500 V
Removing bubble pack from PCB	26,500 V	20,000 V	7,000 V
Packing PCBs in foam-lined box	21,000 V	11,000 V	5,000 V

Packaging and transporting guidelines

Follow these grounding guidelines when packaging and transporting equipment:

- To avoid hand contact, transport products in static-safe tubes, bags, or boxes.
- Protect ESD-sensitive parts and assemblies with conductive or approved containers or packaging.
- Keep ESD-sensitive parts in their containers until the parts arrive at static-free workstations.
- Place items on a grounded surface before removing items from their containers.
- Always be properly grounded when touching a component or assembly.
- Store reusable ESD-sensitive parts from assemblies in protective packaging or nonconductive foam.
- Use transporters and conveyors made of antistatic belts and roller bushings. Be sure that mechanized equipment used for moving materials is wired to ground and that proper materials are selected to avoid static charging. When grounding is not possible, use an ionizer to dissipate electric charges.

Workstation guidelines

Follow these grounding workstation guidelines:

- Cover the workstation with approved static-shielding material.
- Use a wrist strap connected to a properly grounded work surface and use properly grounded tools and equipment.
- Use conductive field service tools, such as cutters, screwdrivers, and vacuums.
- When fixtures must directly contact dissipative surfaces, use fixtures made only of static safe materials.
- Keep the work area free of nonconductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Handle ESD-sensitive components, parts, and assemblies by the case or PCM laminate. Handle these items only at static-free workstations.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting or removing connectors or test equipment.

Equipment guidelines

Grounding equipment must include either a wrist strap or a foot strap at a grounded workstation.

- When seated, wear a wrist strap connected to a grounded system. Wrist straps are flexible straps with a minimum of one megohm $\pm 10\%$ resistance in the ground cords. To provide proper ground, wear a strap snugly against the skin at all times. On grounded mats with banana-plug connectors, use alligator clips to connect a wrist strap.
- When standing, use foot straps and a grounded floor mat. Foot straps (heel, toe, or boot straps) can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use foot straps on both feet with a minimum of one megohm resistance between the operator and ground. To be effective, the conductive must be worn in contact with the skin.

The following grounding equipment is recommended to prevent electrostatic damage:


- Antistatic tape
- Antistatic smocks, aprons, and sleeve protectors
- Conductive bins and other assembly or soldering aids
- Nonconductive foam
- Conductive tabletop workstations with ground cords of one megohm resistance
- Static-dissipative tables or floor mats with hard ties to the ground
- Field service kits
- Static awareness labels
- Material-handling packages
- Nonconductive plastic bags, tubes, or boxes
- Metal tote boxes
- Electrostatic voltage levels and protective materials

The following table lists the shielding protection provided by antistatic bags and floor mats.


Material	Use	Voltage protection level
Antistatic plastics	Bags	1,500 V
Carbon-loaded plastic	Floor mats	7,500 V
Metallized laminate	Floor mats	5,000 V

5 Removal and replacement procedures for Customer Self-Repair parts

This chapter provides removal and replacement procedures for Customer Self-Repair parts.

 **NOTE:** The Customer Self-Repair program is not available in all locations. Installing a part not supported by the Customer Self-Repair program may void your warranty. Check your warranty to determine if Customer Self-Repair is supported in your location.

Component replacement procedures

 **NOTE:** Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Locating system information on page 15](#) for details.

 **NOTE:** HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

Battery

Description	Spare part number
4-cell, 41-Whr, 2.8-Ah, Li-ion battery	800049-001
4-cell, 48-Whr, 2.8-Ah, Li-ion battery	800050-001

Before disassembling the computer, follow these steps:

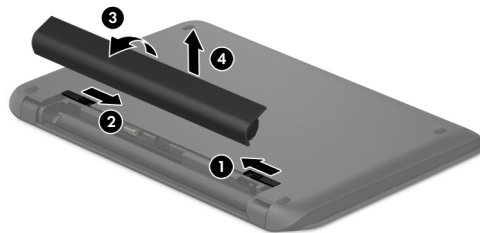
1. Turn off the computer. If you are unsure whether the computer is off or in Hibernation, turn the computer on, and then shut it down through the operating system.
2. Disconnect the power from the computer by unplugging the power cord from the computer.
3. Disconnect all external devices from the computer.

Remove the battery:

WARNING! To reduce potential safety issues, use only the user-replaceable battery provided with the computer, a replacement battery provided by HP, or a compatible battery purchased from HP.

CAUTION: Removing a user-replaceable battery that is the sole power source for the computer can cause loss of information. To prevent loss of information, save your work or shut down the computer through Windows before removing the battery.

1. Position the computer upside down on a flat surface.
2. Slide the battery lock latch **(1)** to release the battery lock.
3. Slide the battery release latch **(2)** to release the battery.
4. Pivot the front edge of the battery **(3)** up and back.
5. Pull the battery up to remove it from the computer **(4)**.



To insert the battery, reverse the removal procedures.

6 Removal and replacement procedures for Authorized Service Provider parts

This chapter provides removal and replacement procedures for Authorized Service Provider only parts.

CAUTION: Components described in this chapter should only be accessed by an authorized service provider. Accessing these parts can damage the computer or void the warranty.

Component replacement procedures

NOTE: Details about your computer, including model, serial number, product key, and length of warranty, are on the service tag at the bottom of your computer. See [Locating system information on page 15](#) for details.

NOTE: HP continually improves and changes product parts. For complete and current information on supported parts for your computer, go to <http://partsurfer.hp.com>, select your country or region, and then follow the on-screen instructions.

There are as many as 55 screws that must be removed, replaced, and/or loosened when servicing Authorized Service Provider only parts. Make special note of each screw size and location during removal and replacement.

DVD±RW Double-Layer SuperMulti Drive

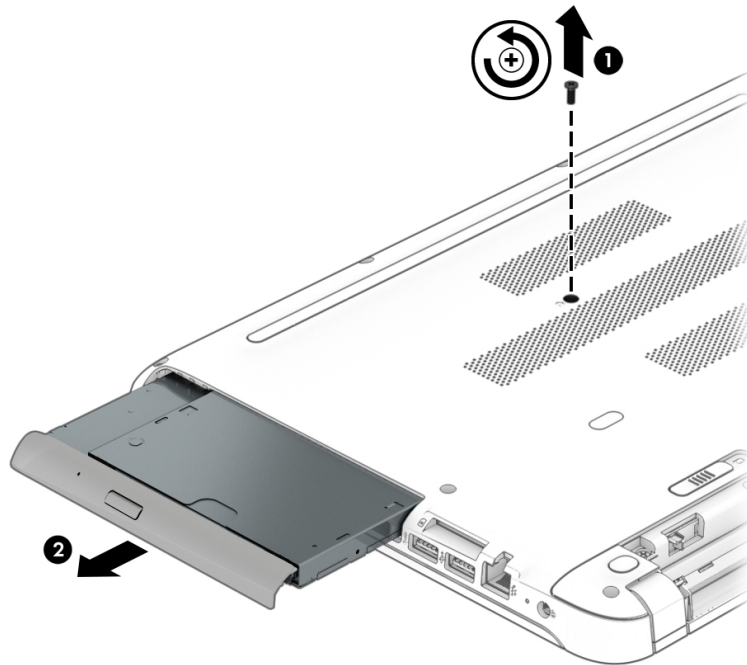
Description	Spare part number
In blizzard white finish	810325-001
In cobalt blue finish	810322-001
In natural silver finish	810320-001
In pretty pink finish	810323-001
In sunset red finish	810327-001
In “TKB” finish	810321-001
In violet purple finish	810324-001

Before removing the optical drive, follow these steps:

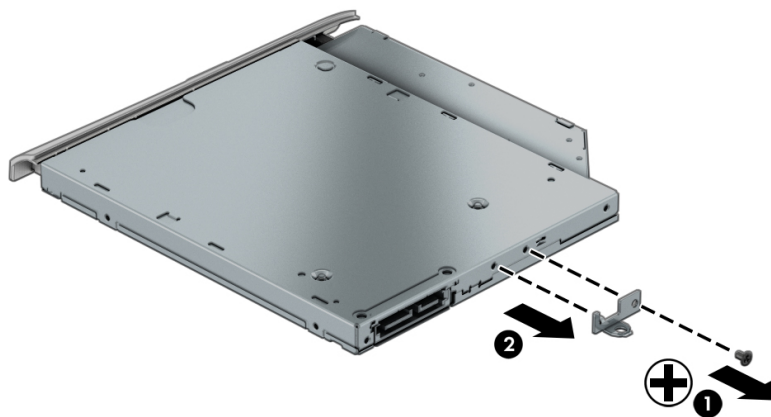
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)).

Remove the optical drive:

1. Remove one Phillips PM2.5×7.2 screw **(1)** that secures the optical drive to the computer.
2. Slide the optical drive out of the computer **(2)**.



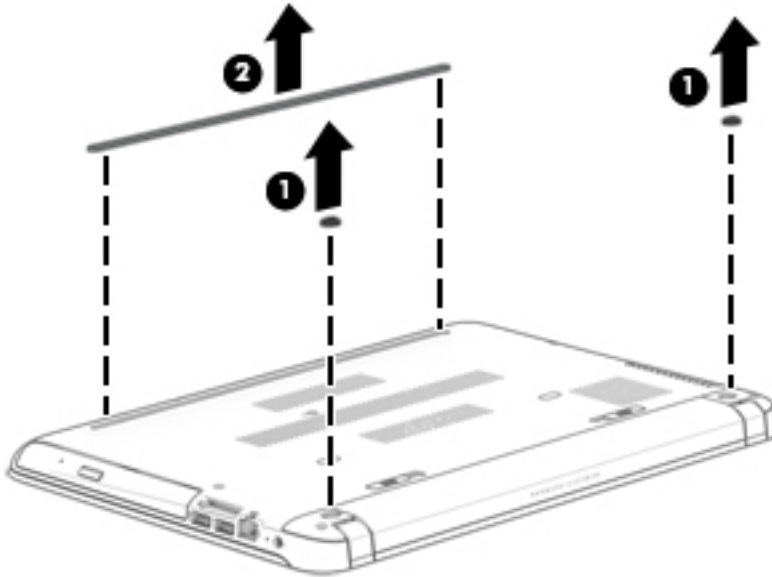
3. To remove the optical drive bracket, remove one Phillips PM2×3.87 screw **(1)** that secures the bracket to the drive **(2)**.



Reverse this procedure to install the optical drive.

Computer feet

The computer feet are adhesive-backed rubber pads. There are 3 rubber feet that attach to the bottom cover in the locations illustrated below. The feet **(1)** that cover two screws are round. The foot along the front of the computer **(2)** is long and thin. All 3 feet are available in the Rubber Kit, spare part number 806754-001.



Bottom cover

Description	Spare part number
In blizzard white finish	806737-001
In cobalt blue finish	806740-001
In natural silver finish	806738-001
In pretty pink finish	806741-001
In sunset red finish	806737-001
In "TKB" finish	810976-001
In violet purple finish	806742-001

Before removing the bottom cover, follow these steps:

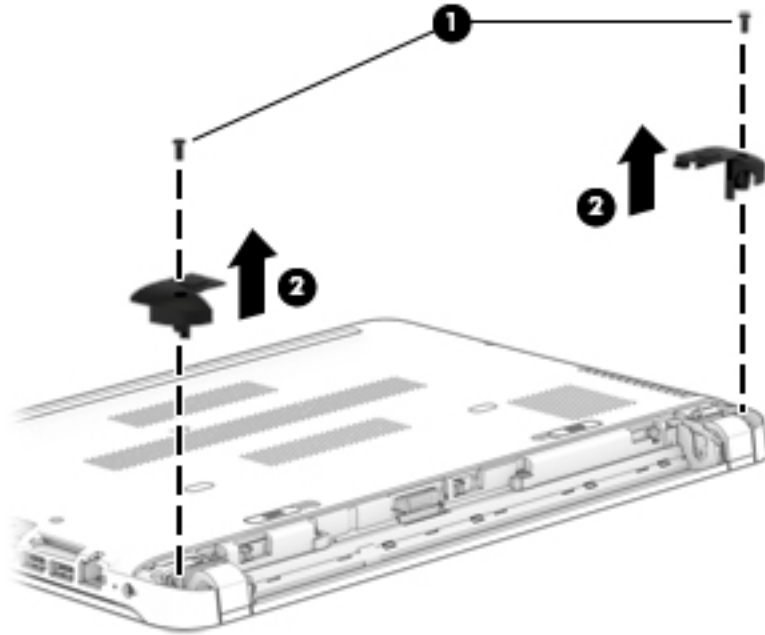
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)).

Remove the bottom corner covers:

1. Remove the two Phillips PM2.5×7.2 screws **(1)** that secure the bottom corner covers.

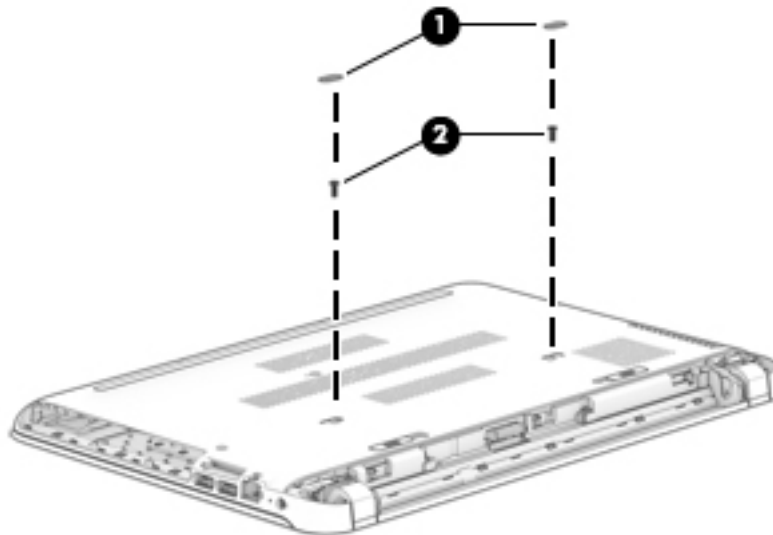
2. Lift the corner covers away from the computer (2).

The bottom corner covers are available using spare part number 806753-001.

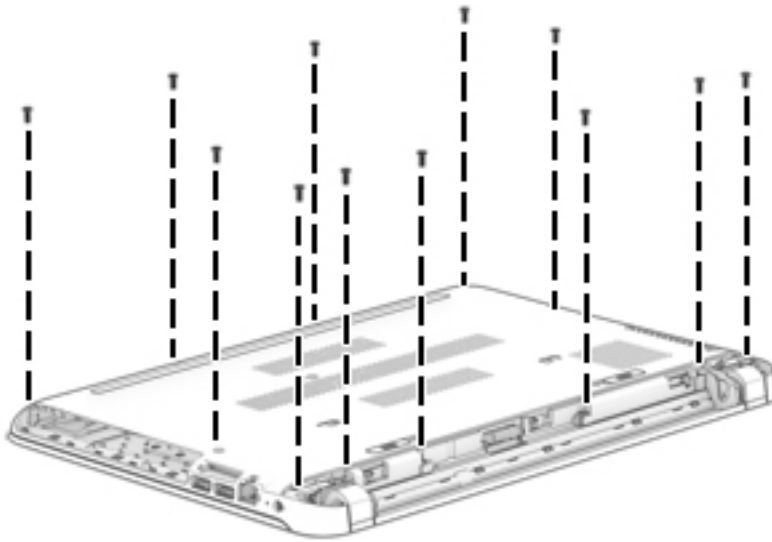


Remove the bottom screw covers and screws:

1. Remove the two screw covers (1).
2. Remove the two Phillips PM2.5×7.2 screws (2) that secure the bottom cover to the computer.

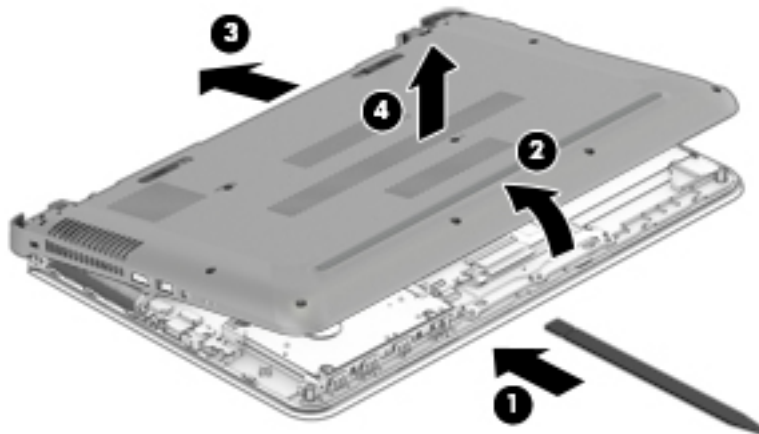


3. Remove the remaining twelve Phillips PM2.5×7.2 screws that secure the bottom cover to the computer.



Release the bottom cover:

1. Slide a case utility tool into a space between the bottom cover and the frame of the computer, exerting gentle pressure until the clips release **(1)**.
2. Tilt the bottom cover up at the front of the computer **(2)**.
3. Slide the bottom cover toward the rear of the computer **(3)**.
4. Lift and remove the bottom cover from the computer **(4)**.



Reverse this procedure to install the bottom cover.

Hard drive

Description	Spare part number
2 TB, 5400 rpm, 9.5mm	801808-005
1 TB, 5400 rpm, 9.5mm	778192-005
750 GB, 5400 rpm, 9.5mm	778190-005
500 GB, 5400 rpm, 7mm/9.5mm	778186-005
1 TB, 5400 rpm + 8 GB NAND Hybrid HDD, 9.5mm	731999-005
Hard Drive Hardware Kit (not illustrated, includes the hard drive bracket, connector cable, isolators, and screws)	806751-001

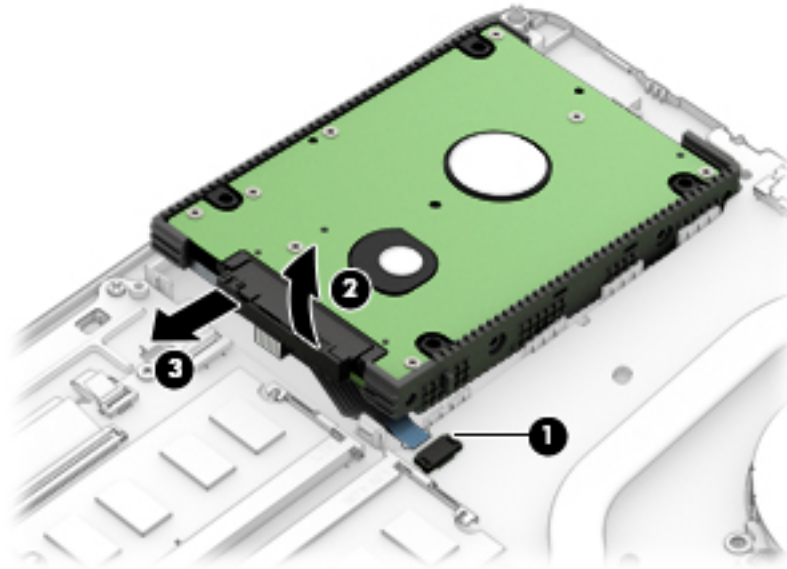
Before removing the hard drive, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)).
5. Remove the optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
6. Remove the bottom cover (see [Bottom cover on page 34](#)).

Remove the hard drive:

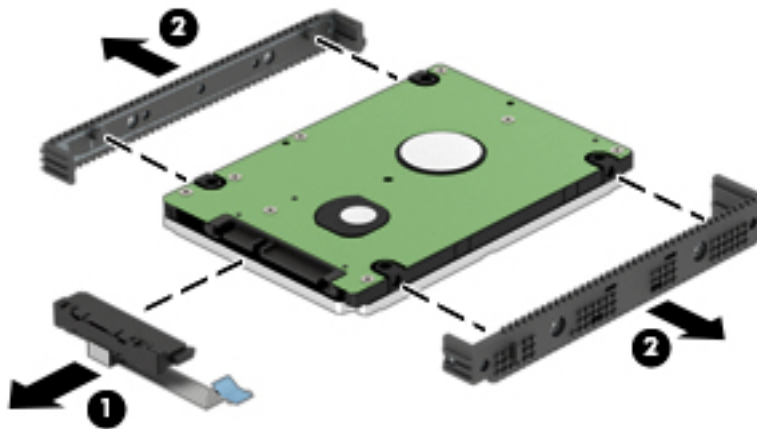
1. Release the hard drive connector cable from the ZIF (zero insertion force) connector **(1)** on the system board.
2. Tilt the hard drive up at an angle **(2)**.

3. Remove the hard drive (3).



Disassemble the hard drive bracket:

1. Disconnect the hard drive connector cable (1) from the hard drive.
2. Remove the hard drive brackets (2).



Reverse this procedure to install the hard drive.

Memory module


Description	Spare part number
8 GB	693374-005
4 GB	691740-005
2 GB	691739-005

Before removing the memory, follow these steps:

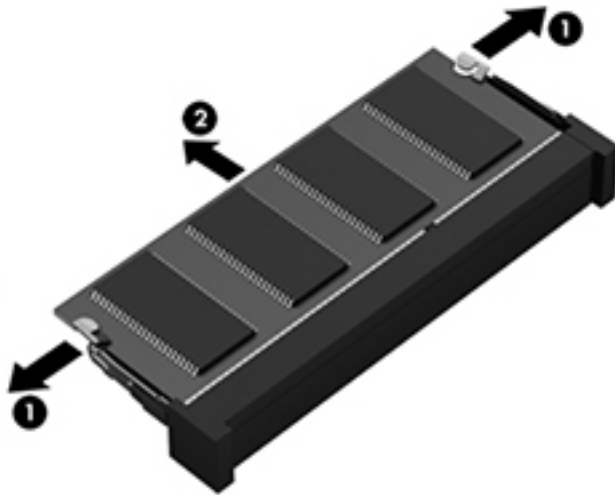
1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).

Remove the memory:

1. Spread the retaining tabs **(1)** on each side of the memory module slot to release the memory module. (The memory module tilts up.)

 **CAUTION:** To prevent damage to the memory module, hold it by the edges only. Do not touch components on the memory module.


2. Remove the memory module **(2)** by pulling it away from the slot at an angle.



Reverse this procedure to install the memory module.

WLAN module

Description	Spare part number
Broadcom BCM43142 802.11 b/g/n 1x1 Wi-Fi + Bluetooth 4.0 Combo Adapter	792608-005
Intel 3165NGWG 1 ac 1×1 + Bluetooth 4.0 LE PCIe+USB NGFF 2230 WW Combo Adapter	806723-005
Intel Dual Band Wireless-AC 3160 802.11 ac 1×1 WiFi + Bluetooth 4.0 Combo Adapter	784644-005
Realtek RTL8188EE 802.11b/g/n Wi-Fi Adapter	792609-005

 **CAUTION:** To prevent an unresponsive system, replace the wireless module only with a wireless module authorized for use in the computer by the governmental agency that regulates wireless devices in your country or region. If you replace the module and then receive a warning message, remove the module to restore device functionality, and then contact technical support.

Before removing the WLAN module, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).

Remove the WLAN module:

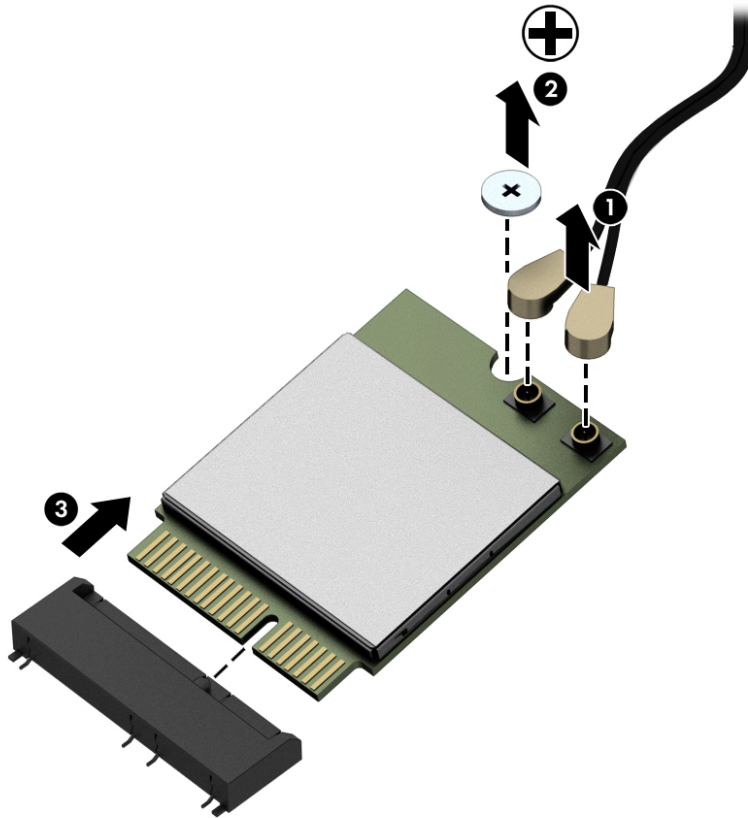
1. Disconnect the WLAN antenna cable(s) from the WLAN module **(1)**.




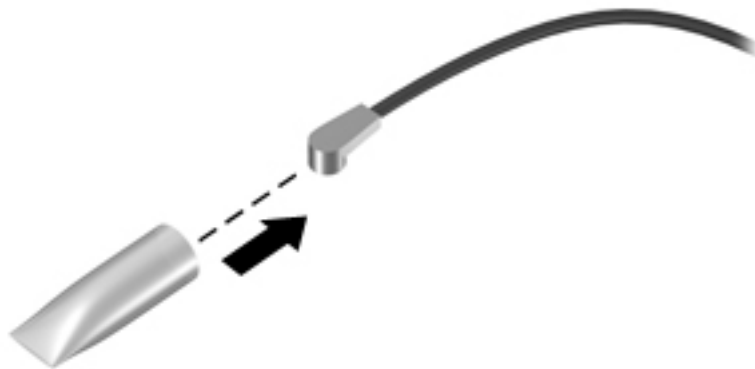
NOTE: The #1 WLAN antenna cable is connected to the WLAN module #1 terminal. The #2 WLAN antenna cable, if present, is connected to the WLAN module #2 terminal.

2. Remove the Phillips PM2.0×3.7 screw **(2)** that secures the WLAN module to the system board.

3. Remove the WLAN module by pulling the module away from the slot at an angle (3).



 **NOTE:** If the WLAN antenna cables are not connected to the terminals on the WLAN module, the protective sleeves should be installed on the antenna connectors, as shown in the following illustration.



Reverse this procedure to install the WLAN module.

Fan

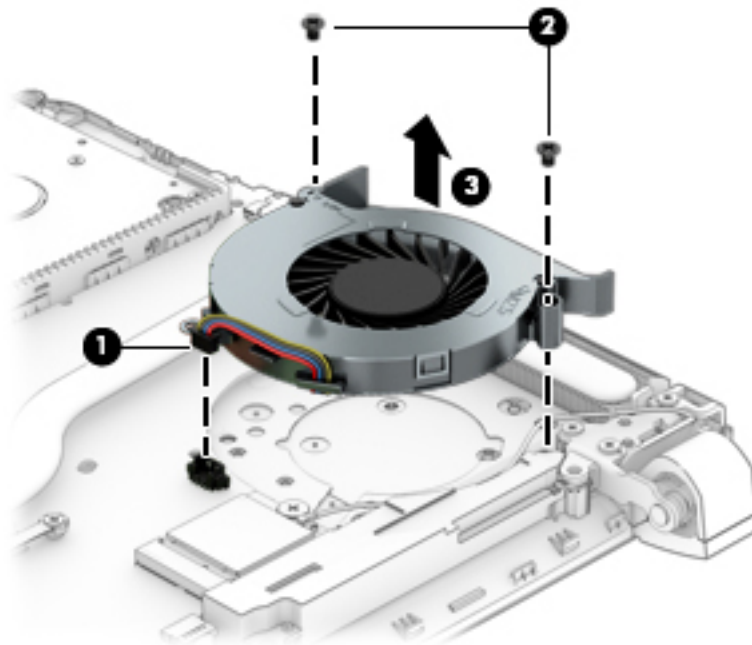
Description	Spare part number
Fan	806747-001

Before removing the fan, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).


Remove the fan:

1. Disconnect the fan power cable **(1)**.
2. Remove the two Phillips PM2.5×3.7 screws **(2)** that secure the fan to the keyboard/top cover.
3. Lift fan away from the computer **(3)**.



Reverse this procedure to install the fan.

USB Connector board

 **NOTE:** The connector board spare part kit includes the connector board cable.

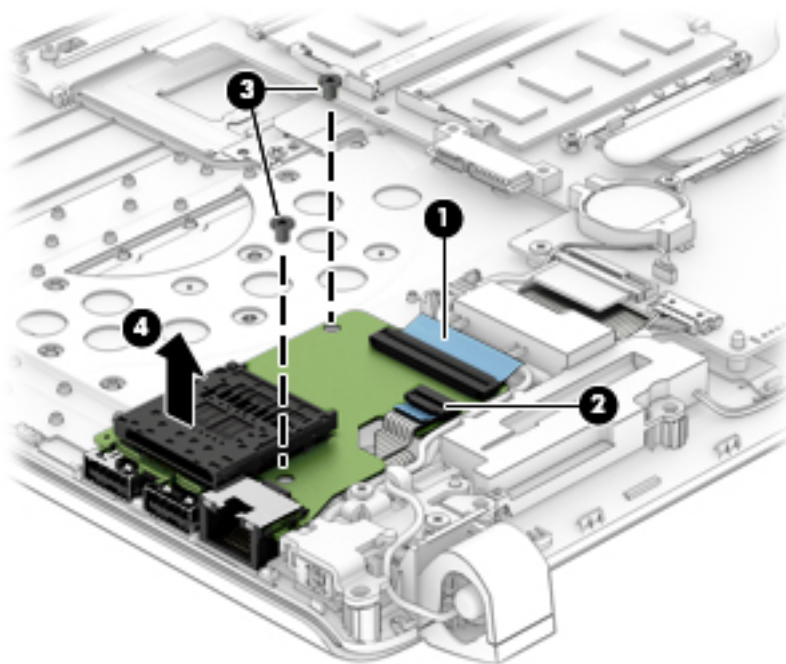
Description	Spare part number
Connector board with cable	806750-001

Before removing the connector board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).

Remove the connector board:

1. Disconnect the connector board cable (1).
2. Disconnect the power button board cable (2).
3. Remove the two 2.5×3.7 screws (3) that secure the connector board to the keyboard/top cover.
4. Lift connector board away from computer (4).



Reverse this procedure to install the connector board.

System board



NOTE: The system board spare part kit includes replacement thermal material.

Description	Spare part number
Equipped with an AMD A10-8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with up to 2.0-GB of discrete memory, and the Windows 10 or Windows 8 Professional operating system	806765-501
Equipped with an AMD A10-8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with up to 2.0-GB of discrete memory, and the Windows 10 or Windows 8 Standard operating system	806765-501
Equipped with an AMD A10-8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with up to 2.0-GB of discrete memory, and a non-Windows operating system	806765-001
Equipped with an AMD A10-8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Professional operating system	806764-601
Equipped with an AMD A10-8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	806764-501
Equipped with an AMD A10-8700P 1.80-GHz (up to 3.20-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	806764-001
Equipped with an AMD A8-7410 2.20-GHz (up to 2.50-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Professional operating system	810972-601
Equipped with an AMD A8-7410 2.20-GHz (up to 2.50-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	810972-501
Equipped with an AMD A8-7410 2.20-GHz (up to 2.50-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	810972-001
Equipped with an AMD A6-6310 1.80-GHz (up to 2.40-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	806763-501
Equipped with an AMD A6-6310 1.80-GHz (up to 2.40-GHz) processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	806763-001
Equipped with an AMD A4-6210 1.80-GHz processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and the Windows 10 or Windows 8 Standard operating system	806762-501
Equipped with an AMD A4-6210 1.80-GHz processor (1600-MHz FSB, 2.00-MB L2 cache, quad core, 15 W), a graphics subsystem with UMA memory, and a non-Windows operating system	806762-001



IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the system board, follow these steps:


1. Shut down the computer.
2. Disconnect all external devices connected to the computer.


3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. WLAN module (see [WLAN module on page 40](#)).
 - d. Memory (see [Memory module on page 39](#)).
 - e. Fan (see [Fan on page 42](#)).

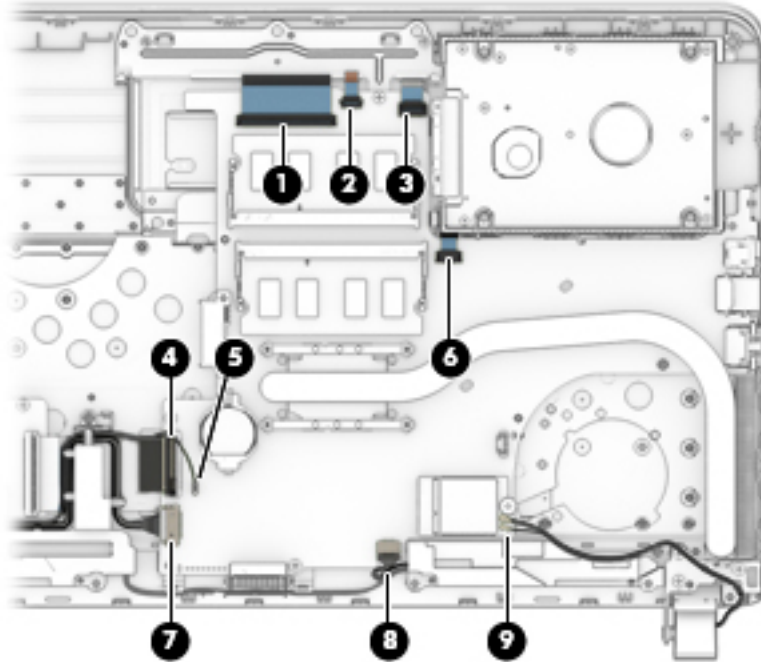
Remove the system board:

1. Release the ZIF connector **(1)** to which the keyboard cable is attached, and then disconnect the keyboard cable from the system board.
2. Release the ZIF connector **(2)** to which the keyboard backlight cable is attached, and then disconnect the keyboard backlight cable from the system board (select models only).
3. Release the ZIF connector **(3)** to which the TouchPad cable is attached, and then disconnect the TouchPad cable from the system board.
4. Release the ZIF connector **(4)** to which the display panel cable is attached, and then disconnect the display panel cable from the system board.
5. Disconnect the ambient sensor light cable **(5)** (select models only).
6. Release the ZIF connector **(6)** to which the hard drive connector cable is attached, and then disconnect the hard drive connector cable from the system board.
7. Disconnect the power connector cable **(7)**.
8. Disconnect the speaker cable **(8)**.

9. Disconnect the WLAN antenna cable **(9)**.

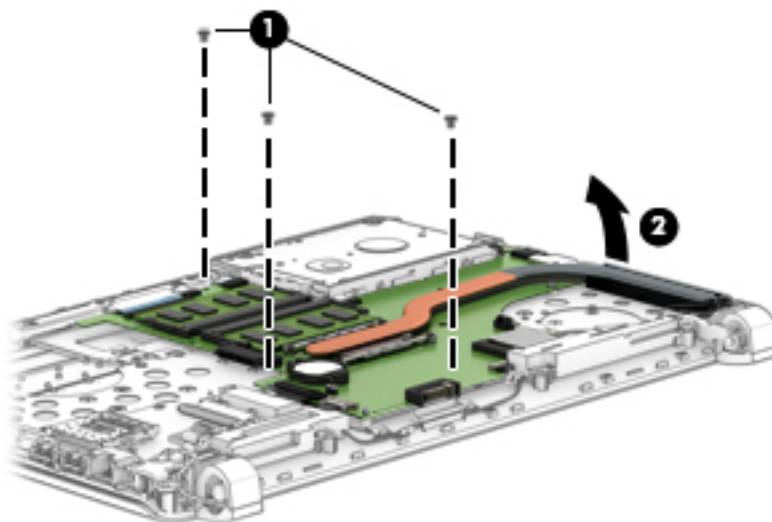
 **NOTE:** If you have already removed the WLAN module (see [WLAN module on page 40](#)), then this cable has already been disconnected.

 **NOTE:** On select models, you may need to disconnect two WLAN antenna cables.



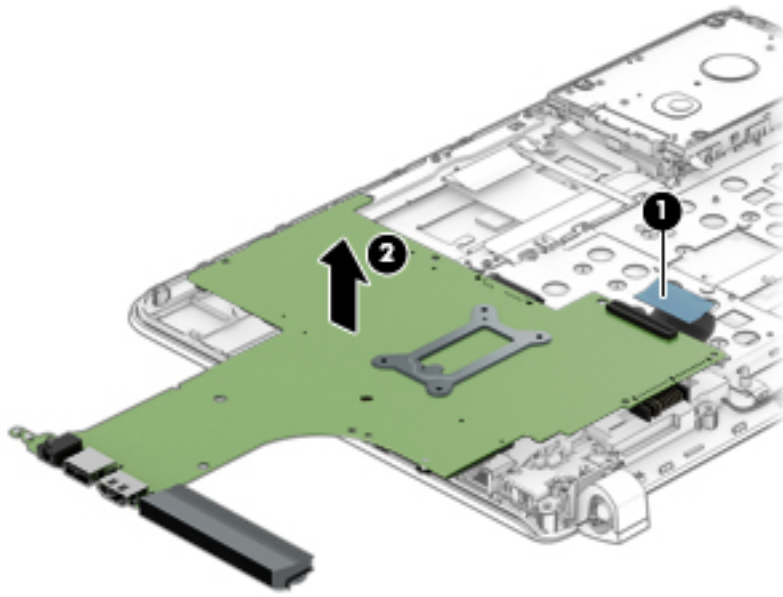
10. Remove three Phillips PM2.5×3.7 screws **(1)** that secure the system board to the keyboard/top cover.

11. Turn the system board upside-down, from left to right **(2)**.



12. Disconnect the USB connector board cable from the ZIF connector **(1)**.

13. Remove the system board (2).




Reverse this procedure to install the system board.

Heat sink (with discrete memory)

 **NOTE:** The heat sink spare part kit includes replacement thermal material.

Description	Spare part number
For use only with computer models equipped with an AMD A10 processor and a graphics subsystem with discrete memory	809105-001


 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the heat sink, follow these steps:


1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).

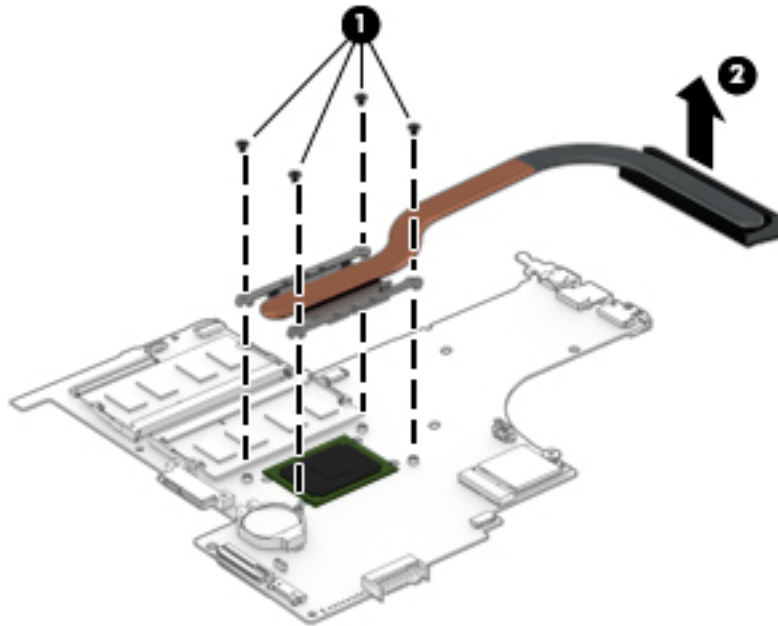
Remove the heat sink:


1. Loosen the four Phillips PM2×4 captive screws **(1)** that secure the heat sink to the system board.

 **CAUTION:** Screws should be loosened in the order embossed on the heat sink plate. Failing to remove the screws in this order could damage the computer's processor.

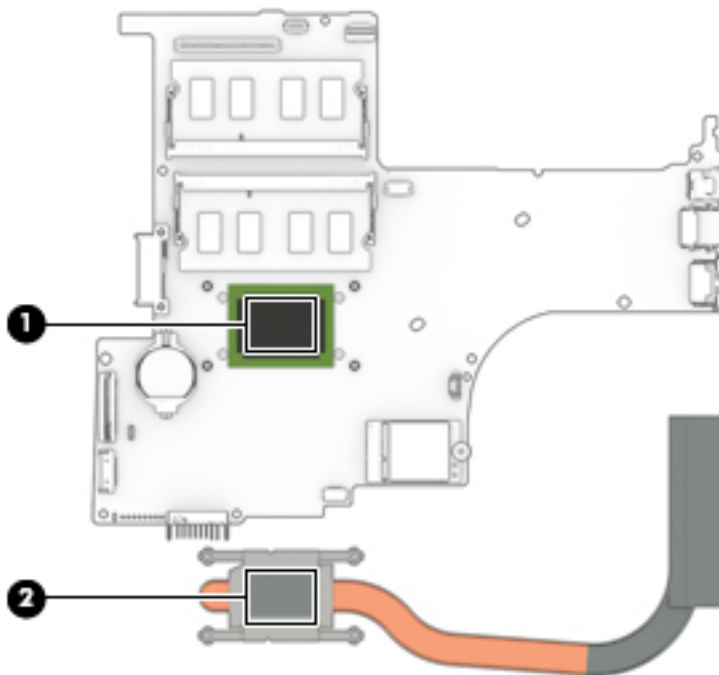
2. Lift heat sink away from system board (2).

 **NOTE:** Due to the adhesive quality of the thermal material located between the heat sink and the system board components, it may be necessary to move the heat sink from side to side to detach it.



 **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink and system board spare part kits. Thermal material is used in the following locations:

- Thermal material is used on the processor (1) and the heat sink section (2) that services it.




Reverse this procedure to install the heat sink.

Heat sink (with UMA memory) (select models only)

 **NOTE:** The heat sink spare part kit includes replacement thermal material.

Description	Spare part number
For use only with computer models equipped with an AMD A8/A6/A4 processor and a graphics subsystem with UMA memory	806759-001
For use only with computer models equipped with an AMD A10 processor and a graphics subsystem with UMA memory	809104-001


 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the heat sink, follow these steps:


1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).

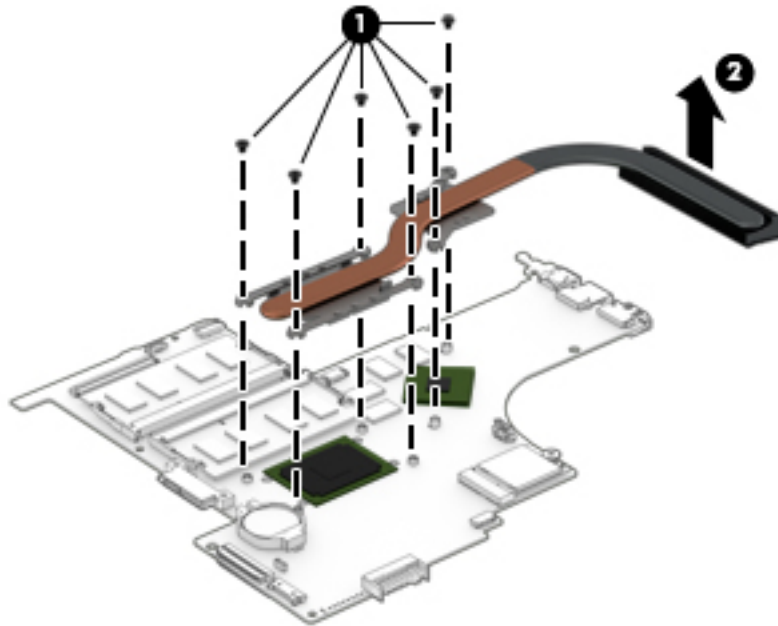
Remove the heat sink:


1. Loosen the six Phillips PM2×4 captive screws **(1)** that secure the heat sink to the system board.

 **CAUTION:** Screws should be loosened in the order embossed on the heat sink plates. Failing to remove the screws in this order could damage the computer's processor or video components.

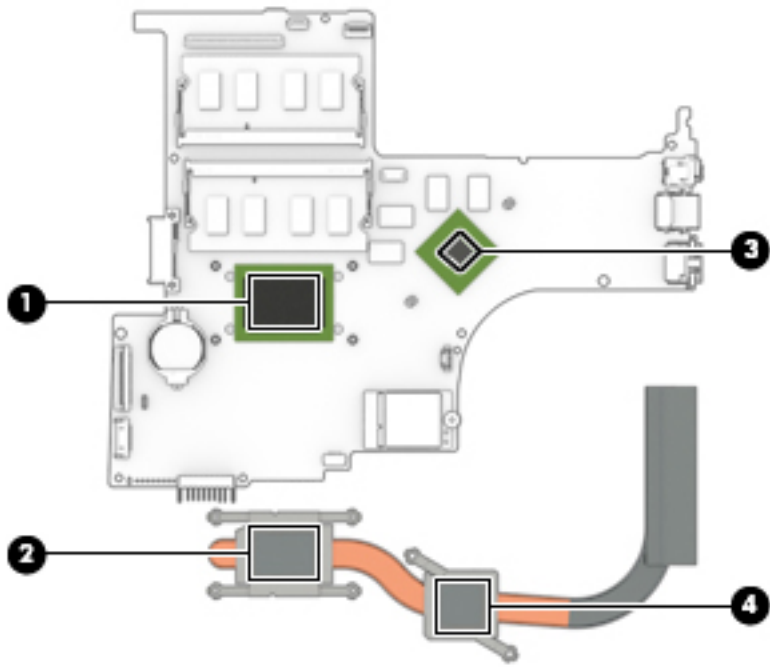
2. Lift heat sink away from system board (2).

 **NOTE:** Due to the adhesive quality of the thermal material located between the heat sink and the system board components, it may be necessary to move the heat sink from side to side to detach it.



 **NOTE:** The thermal material must be thoroughly cleaned from the surfaces of the heat sink and the system board components each time the heat sink is removed. Replacement thermal material is included with the heat sink and system board spare part kits. Thermal material is used in the following locations:

- Thermal material is used on the processor (1) and the heat sink section (2) that services it.
- A thermal pad is also used on the graphics subsystem component (3) and the heat sink section (4) that services it.



Reverse this procedure to install the heat sink.

TouchPad



NOTE: The TouchPad spare part kit includes the cable.

Description	Spare part number
TouchPad board with cable	811580-001



IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

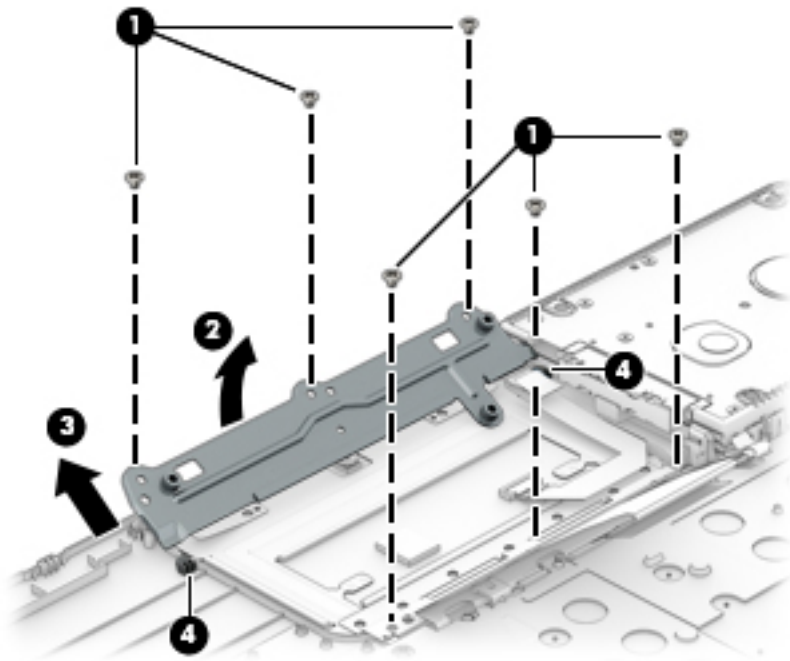
Before removing the TouchPad, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. WLAN module(see [WLAN module on page 40](#)).
 - d. Memory (see [Memory module on page 39](#)).
 - e. Fan (see [Fan on page 42](#)).
 - f. System board (see [System board on page 44](#)).

Remove the TouchPad bracket:

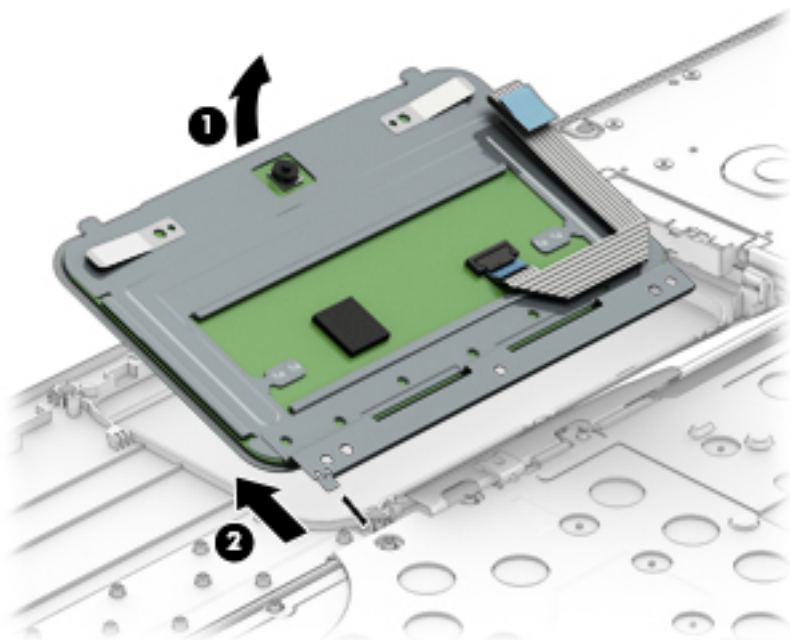
1. Remove the six Phillips PM2×2.3 screws **(1)** that secure the TouchPad and TouchPad bracket to the keyboard/top cover.
2. Rotate the TouchPad bracket upward **(2)**.

3. Remove the bracket **(3)** from the sockets **(4)**.




Remove the TouchPad:

1. Release the TouchPad by tilting upward at the front **(1)**.
2. Pull the TouchPad away from the computer at an angle **(2)**.



Reverse this procedure to install the TouchPad.

Removing the display

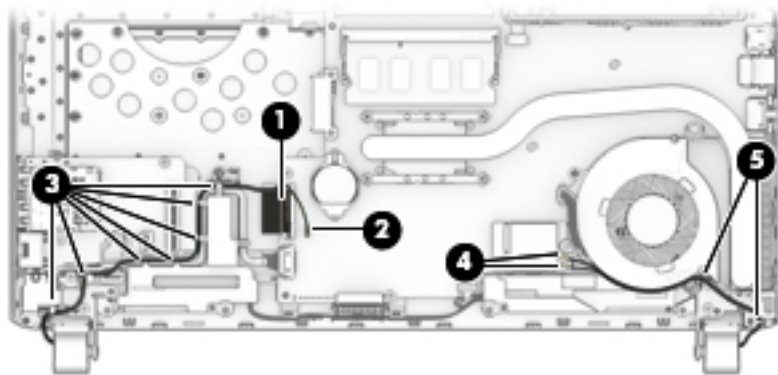
 **IMPORTANT:** Make special note of each screw and screw lock size and location during removal and replacement.

Before removing the display, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).


Disconnect the display:

1. Disconnect the display cable from the ZIF connector **(1)** on the system board .
2. Disconnect the ambient light sensor cable **(2)** from the system board.
3. Remove the display cable from the clips in the routing path **(3)**.
4. Disconnect the WLAN antenna cable(s) **(4)** from the WLAN module.
5. Remove the WLAN antenna cable(s) from the routing path clips **(5)**.



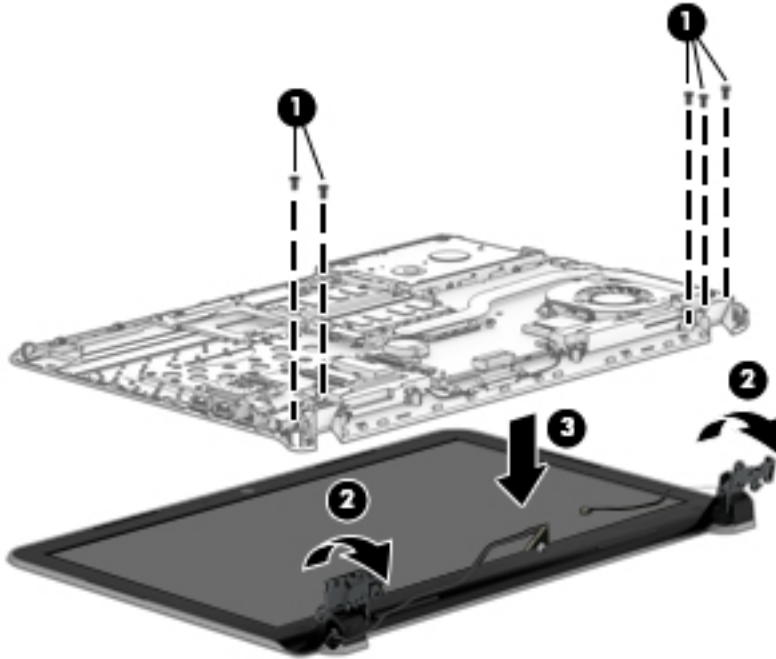
Remove the display:

1. Remove the five Phillips PM2.5×5.6 screws **(1)** that secure the display assembly to the computer.

 **CAUTION:** Support the display assembly when removing the screws. Failure to support the display assembly can result in damage to the display assembly and other computer components.

2. Rotate the hinges away from the bottom cover **(2)**.

3. Lift the bottom cover away from the display assembly (3).



Reverse this procedure to install the display assembly.

Speakers

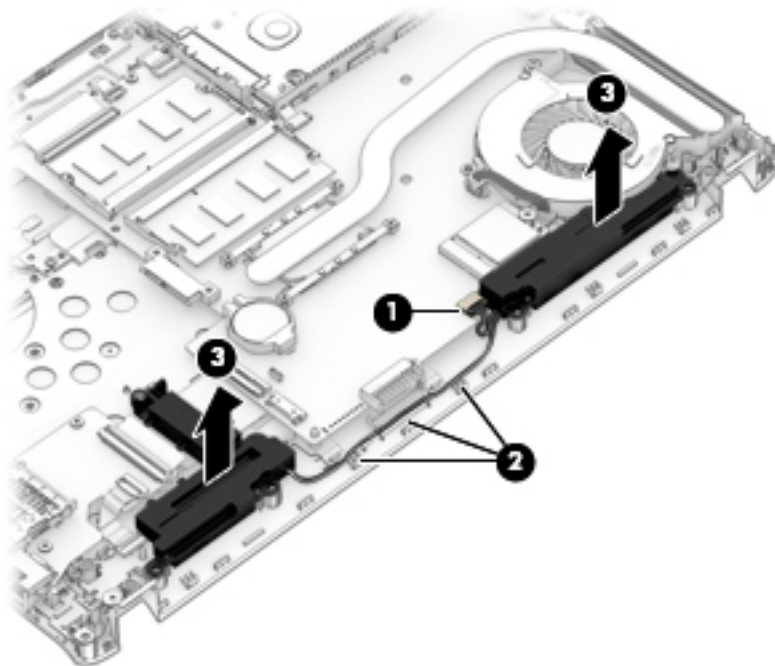
Description	Spare part number
Speakers	806755-001

Before removing the speakers, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. Display assembly (see [Removing the display on page 55](#)).

Remove the speakers:

1. Disconnect the speaker cable from the system board **(1)**.
2. Disconnect the speaker cable from the clips on the bottom cover **(2)**.
3. Lift the speakers away from the bottom cover **(3)**.



Reverse this procedure to install the speakers.

Power connector cable

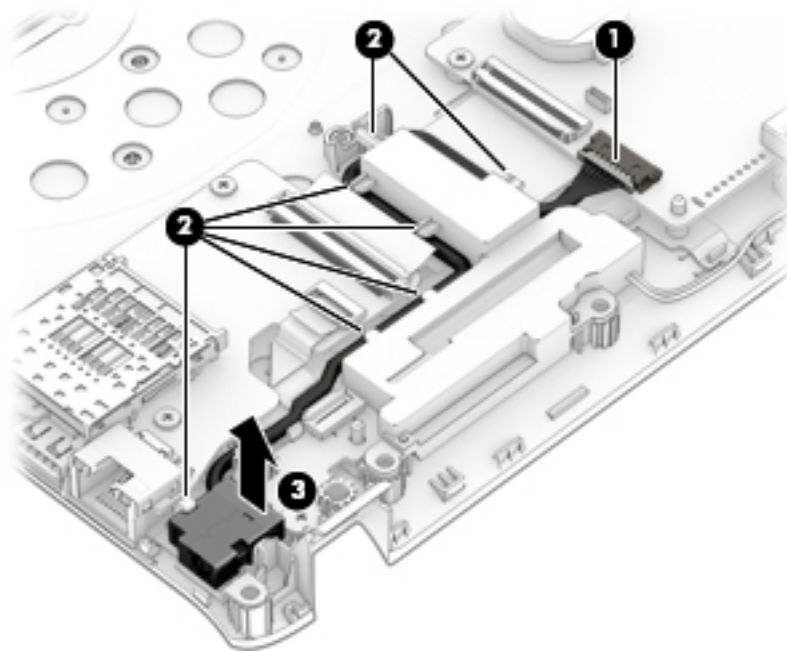
Description	Spare part number
Power connector cable	806746-001

Before removing the power connector cable, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. Display assembly (see [Removing the display on page 55](#)).
 - d. Speakers (see [Speakers on page 57](#)).

Remove the power connector cable:

1. Disconnect power connector cable **(1)**.
2. Remove the cable from the bottom cover clips **(2)**.
3. Lift the power connector from the bottom cover **(3)**.



Reverse this procedure to install the power connector cable.

Power button board



NOTE: The power button board spare part kit includes the power connector cable.

Description	Spare part number
Power button board	806749-001



IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

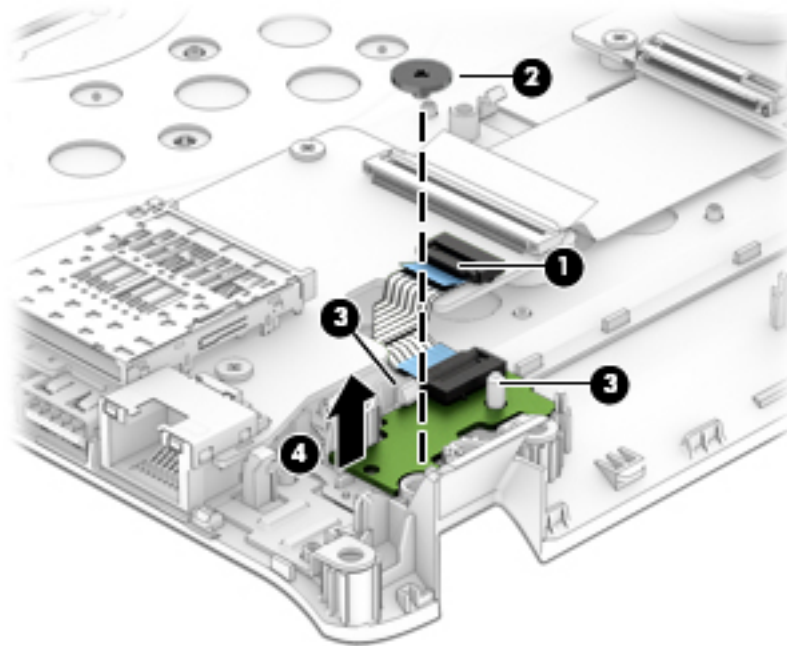
Before removing the power button board, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. Display assembly (see [Removing the display on page 55](#)).
 - d. Speakers (see [Speakers on page 57](#)).
 - e. Power connector cable (see [Power connector cable on page 58](#)).

Remove the power button board:

1. Disconnect power connector cable **(1)**.
2. Remove the one Phillips PM2×2 broad head screw **(2)** that secures the board to the keyboard/top cover.
3. Remove the power button board from the bottom cover retention clips **(3)**.

4. Lift the power button board up at an angle and remove from the bottom cover **(4)**.



Reverse this procedure to install the power button board.

Display assembly (non-TouchScreen) (select models only)

Description	Spare part number
Display enclosure in blizzard white finish	806737-001
Display enclosure in cobalt blue finish	806734-001
Display enclosure in natural silver finish	806732-001
Display enclosure in pretty pink finish	806735-001
Display enclosure in sunset red finish	806733-001
Display enclosure in “TKB” finish	810974-001
Display enclosure in violet purple finish	806736-001
Display bezel	806744-001
Display panel cable	806745-001
Display hinges	806748-001
Display panel — BrightView, HD	806766-001



IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before disassembling the display panel, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD±RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. Display assembly (see [Removing the display on page 55](#)).

Remove the display bezel:

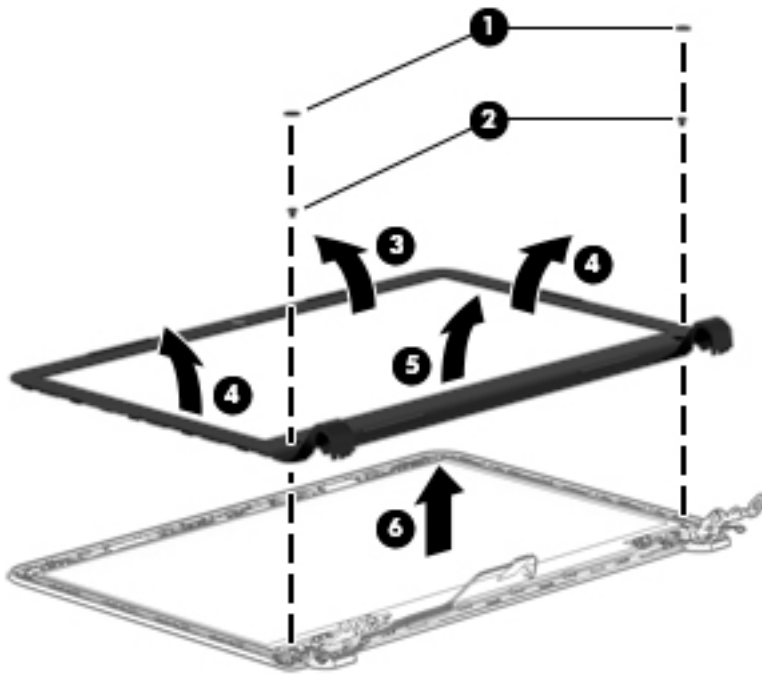
1. Remove the 2 screw covers **(1)**.
2. Remove two Phillips PM2.5×4.2 screws **(2)**.
3. Using a case utility tool, gently pry the bezel away from the display enclosure **(3)**.



CAUTION: Do not insert the case utility tool or other device at the top of the bezel near the webcam. Doing so could damage the webcam and other components.

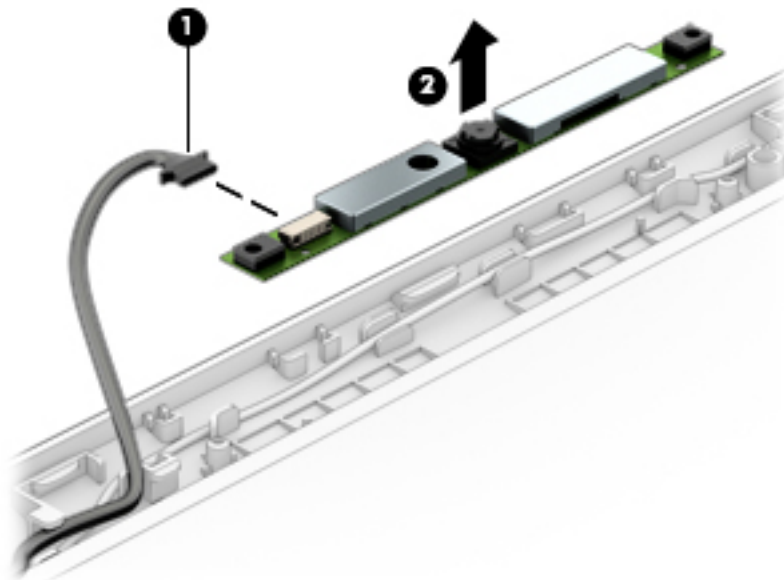
4. Continue to pry the bezel apart from the enclosure on the sides of the display **(4)**.
5. Complete the separation of the bezel from the display enclosure at the bottom of the display **(5)**.

6. Lift the bezel away from the display enclosure (6).



Remove the webcam and microphone module:

1. Disconnect the webcam cable (1).
2. Lift the webcam away from the display enclosure (2).

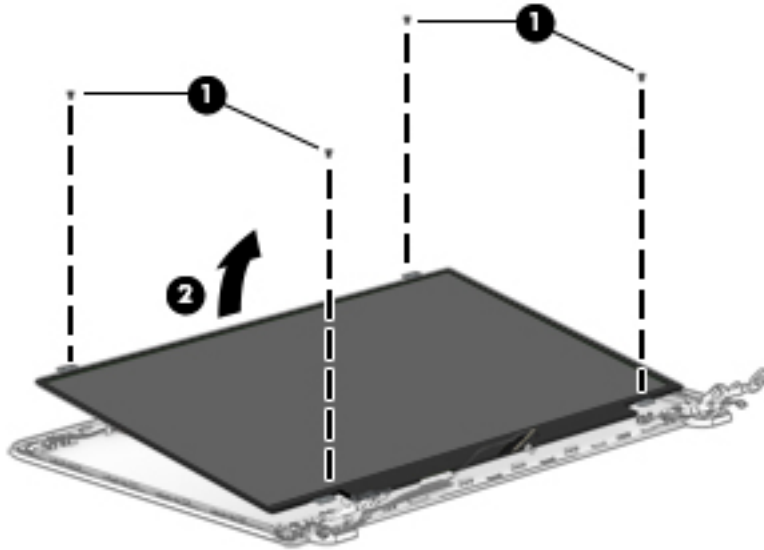


CAUTION: The webcam is attached to the display enclosure with adhesive. Use gentle pressure while removing the webcam to avoid breaking the component.

Release the display panel:

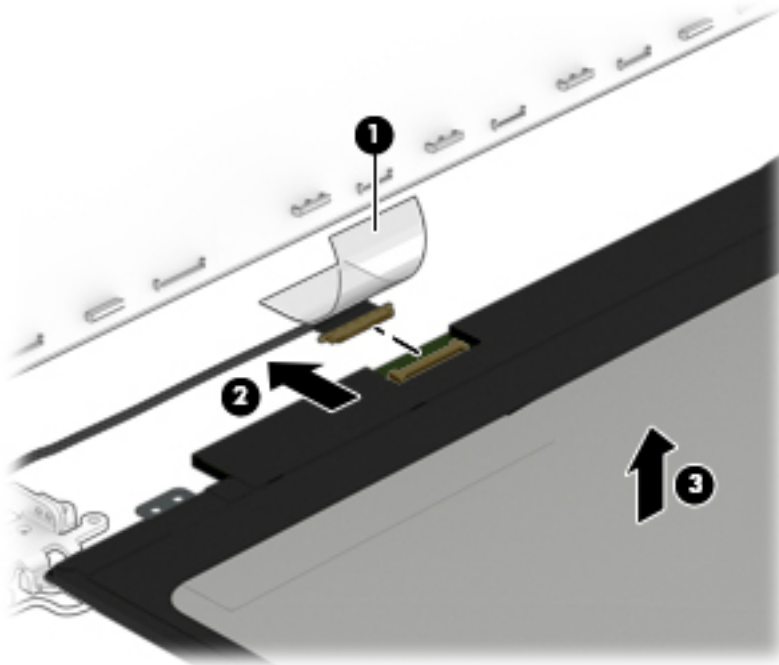
1. Remove the four Phillips PM1.9×2.85 screws (1) that secure the display to the display enclosure.

2. Lift the display panel away from the display enclosure at an angle **(2)**.



Remove the display panel:

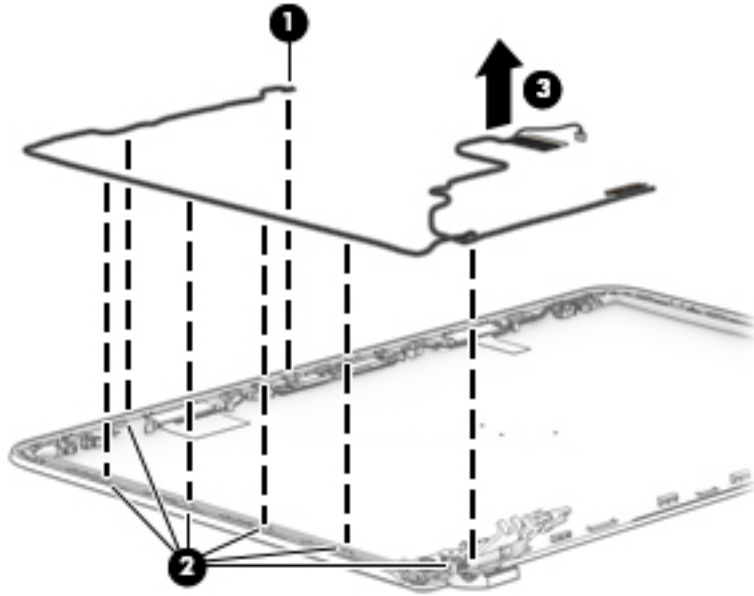
1. Remove adhesive covering display panel connector **(1)**.
2. Disconnect display panel cable **(2)**.
3. Lift the display panel away from the display enclosure **(3)**.



Remove the display panel cable:

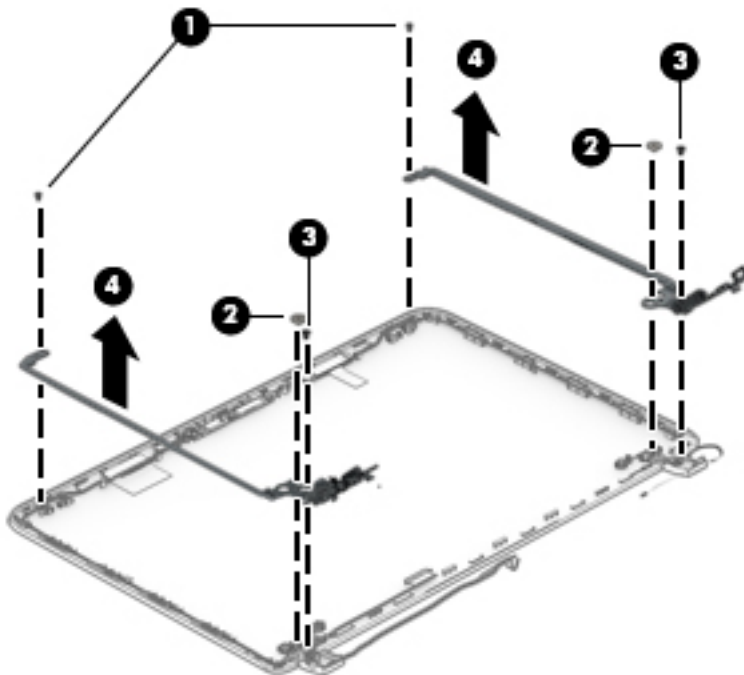
1. Disconnect display panel cable from webcam **(1)**.
2. Remove cable from routing clips on display enclosure **(2)**.

3. Remove cable from display enclosure (3).



Remove the display panel hinges:

1. Remove the two Phillips PM1.9×3.5 screws (1) that secure the hinges to the display enclosure.
2. Remove the two Phillips PM2.5×3.22 broad head screws (2) that secure the hinges to the display enclosure.
3. Remove the two Phillips PM2.4×4.7 screws (3) that secure the hinges to the display enclosure.
4. Remove the hinges from display enclosure (4).

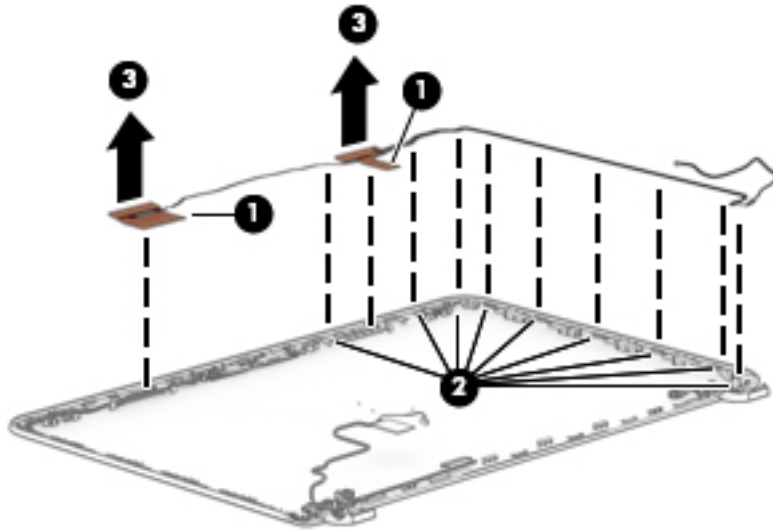


Remove the WLAN module antenna cable:

1. Release the WLAN transceivers **(1)**.

⚠ CAUTION: The transceivers are attached to the display enclosure with adhesive. To avoid damaging the components, use only gentle pressure when removing them from the enclosure.

2. Release the antenna cable from the routing clips on the right side of the enclosure **(2)**.
3. Remove antenna cable from enclosure **(3)**.



Reverse this procedure to reassemble and install the display panel.

Display assembly (TouchScreen) (select models only)

Description	Spare part number
Display enclosure in blizzard white finish	818391-001
Display enclosure in cobalt blue finish	818388-001
Display enclosure in natural silver finish	818386-001
Display enclosure in pretty pink finish	818389-001
Display enclosure in sunset red finish	818387-001
Display enclosure in “TKB” finish	818392-001
Display enclosure in violet purple finish	818390-001
Display panel cable	811584-001
Display hinges	806748-001
Display panel — BrightView, HD	811079-001



IMPORTANT: Make special note of each screw and screw lock size and location during removal and replacement.

Before disassembling the display panel, follow these steps:

1. Shut down the computer.
2. Disconnect all external devices connected to the computer.
3. Disconnect the power from the computer by first unplugging the power cord from the AC outlet and then unplugging the AC adapter from the computer.
4. Remove the battery (see [Battery on page 31](#)), and then remove the following components:
 - a. Optical drive (see [DVD+RW Double-Layer SuperMulti Drive on page 32](#)).
 - b. Bottom cover (see [Bottom cover on page 34](#)).
 - c. Display assembly (see [Removing the display on page 55](#)).

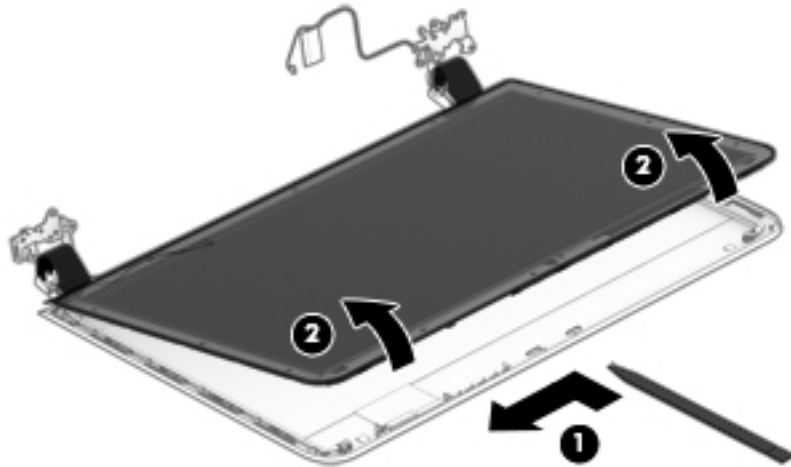
Remove the display panel from the top enclosure:

1. Using a case utility tool, carefully separate the panel from the display enclosure **(1)**.



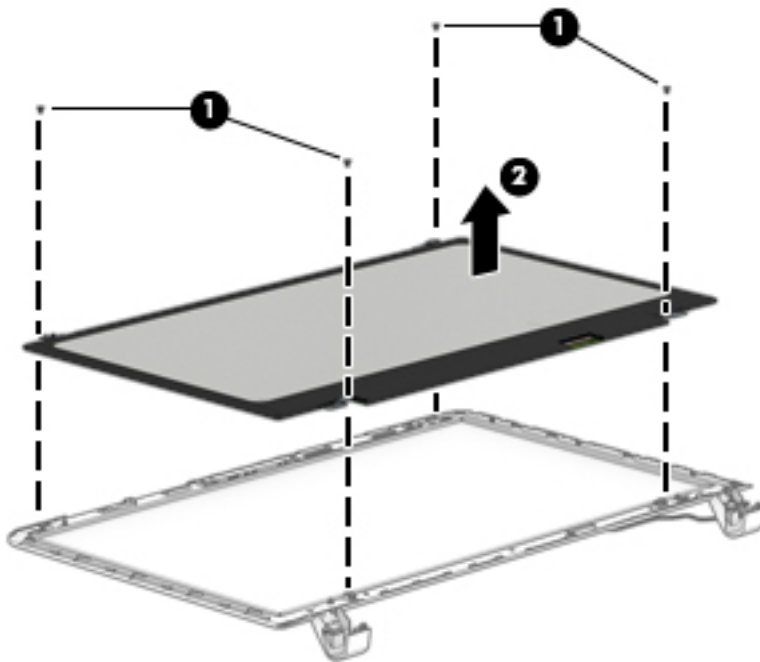
CAUTION: Do not insert the case utility tool or other device at the top of the bezel near the webcam. Doing so could damage the webcam and other components.

2. Lift the panel away from the display enclosure (2).



Remove the TouchScreen from the display panel:

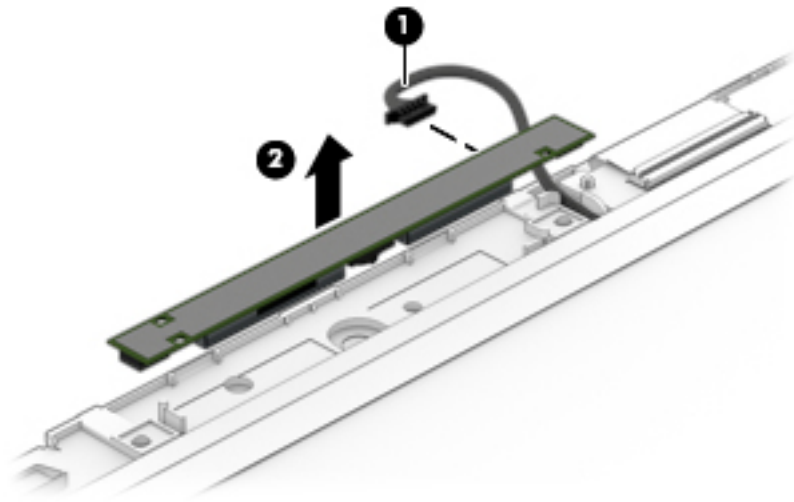
1. Remove the four Phillips PM1.9×2.9 screws (1) that secure the display to the display enclosure.
2. Lift the panel up from the display enclosure (2).



Remove the webcam and microphone module:

1. Disconnect the webcam cable (1).

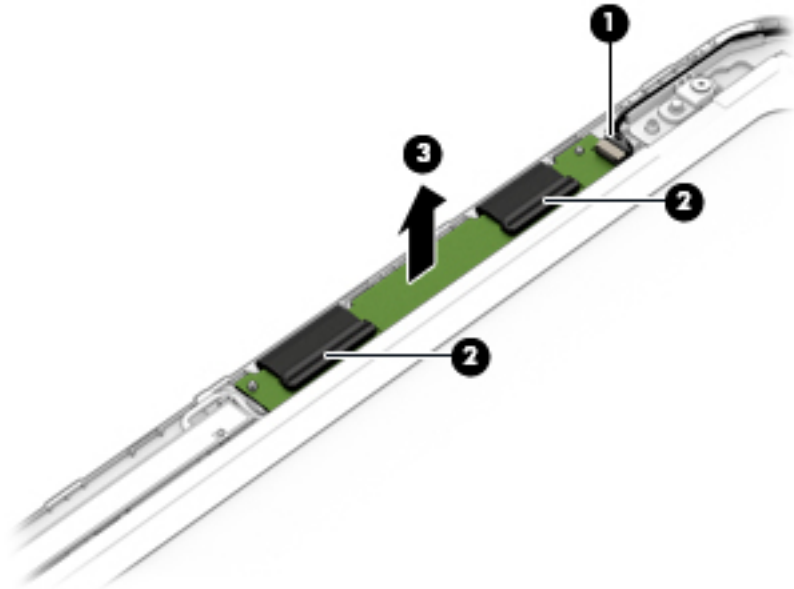
2. Lift the webcam away from the display enclosure (2).



CAUTION: The webcam is attached to the display enclosure with adhesive. Use gentle pressure while removing the webcam to avoid breaking the component.

Release the TouchScreen interface board:

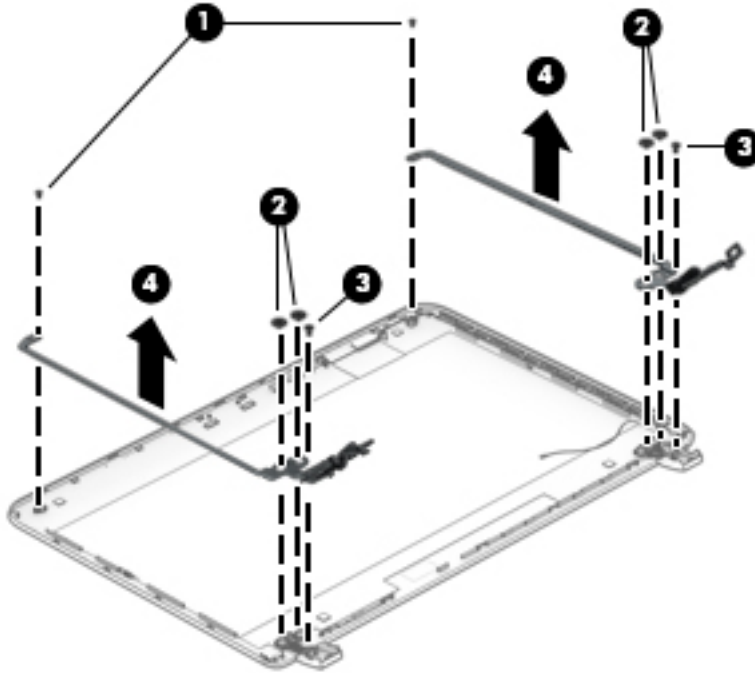
1. Disconnect the TouchScreen interface board cable (1).
2. Detach the clips from the board (2).
3. Lift the TouchScreen interface board away from the display enclosure (3).



Remove the display panel hinges:

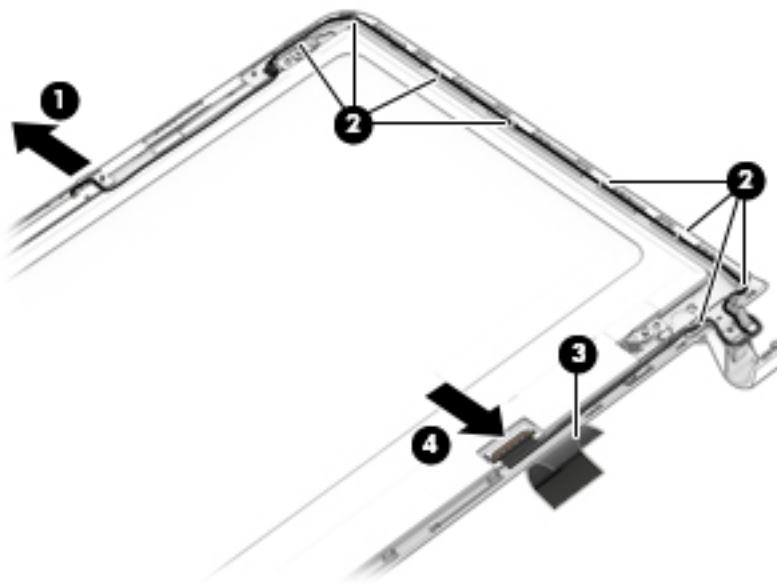
1. Remove the two Phillips PM1.9×3.5 screws (1) that secure the hinges to the display enclosure.
2. Remove the four Phillips PM2.5×3.22 broad head screws (2) that secure the hinges to the display enclosure.
3. Remove the two Phillips PM2.4×4.7 screws (3) that secure the hinges to the display enclosure.

4. Remove the hinges from display enclosure (4).



Remove the display panel cable:

1. Disconnect display panel cable from webcam (1).
2. Remove cable from routing clips on display enclosure (2).
3. Remove tape cover display panel cable connector (3).
4. Disconnect the display panel cable from the TouchScreen (4).

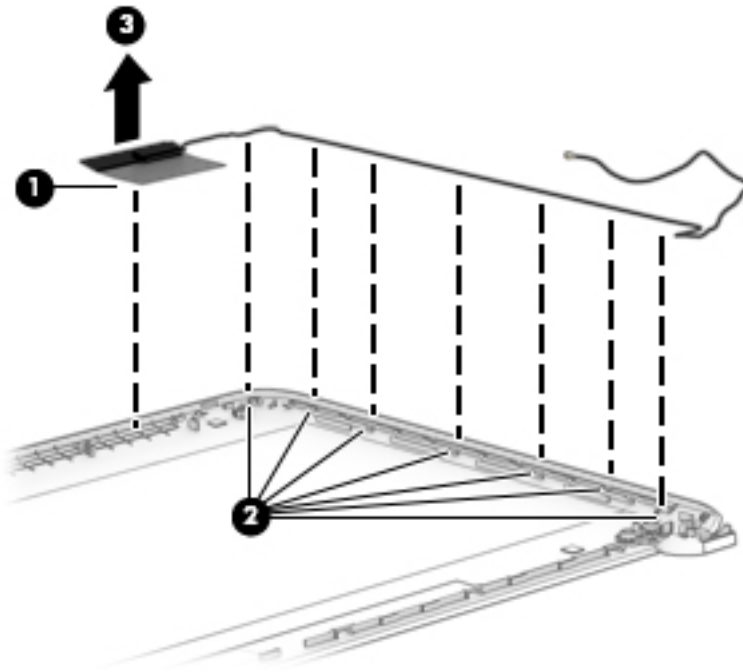


Remove the WLAN module antenna cable:

1. Release the WLAN transceiver (1).

⚠ CAUTION: The transceiver are attached to the display enclosure with adhesive. To avoid damaging the component, use only gentle pressure when removing them from the enclosure.


2. Release the antenna cable from the routing clips on the right side of the enclosure **(2)**.
3. Remove antenna cable and transceiver from enclosure **(3)**.




Reverse this procedure to reassemble and install the display panel.


7 Using Setup Utility (BIOS) – Windows 10

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility (BIOS) includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

 **NOTE:** To start Setup Utility on convertible computers, your computer must be in notebook mode and you must use the keyboard attached to your notebook. The on-screen keyboard, which displays in tablet mode, cannot access Setup Utility.

Starting Setup Utility (BIOS)

 **CAUTION:** Use extreme care when making changes in Setup Utility (BIOS). Errors can prevent the computer from operating properly.

 **NOTE:** To start Setup Utility on convertible computers, your computer must be in notebook mode and you must use the keyboard attached to your notebook. The on-screen keyboard, which displays in tablet mode, cannot access Setup Utility.

- Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, quickly press [esc](#), and then press [f10](#).
- Tablets without keyboards:
 1. Turn on or restart the tablet, and then quickly hold down the volume down button.
 - or –
 - Turn on or restart the tablet, and then quickly hold down the Windows button.
 2. Tap [f10](#).

Updating Setup Utility (BIOS)

Updated versions of Setup Utility (BIOS) may be available on the HP website.

Updated versions of Setup Utility (BIOS) may be available on the HP website.

Some download packages contain a file named Readme.txt, which contains information regarding installing and troubleshooting the file.

Determining the BIOS version

To decide whether you need to update Setup Utility (BIOS), first determine the BIOS version on your computer.

To reveal the BIOS version information (also known as ROM date and System BIOS):


1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Click the question mark icon in the taskbar.
2. Select **My PC**, and then select **Specifications**.
– or –
▲ Use Setup Utility (BIOS).

To use Setup Utility (BIOS):


1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 71](#)).
2. Select **Main**, select **System Information**, and then make note of the BIOS version.
3. Select **Exit**, select **No**, and then follow the on-screen instructions.

To check for later BIOS versions, see [Downloading a BIOS update on page 72](#).

Downloading a BIOS update

 **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

 **NOTE:** If your computer is connected to a network, consult the network administrator before installing any software updates, especially system BIOS updates.

1. Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.
– or –
Click the question mark icon in the taskbar.
2. Click **Updates**, and then click **Check for updates and messages**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS version, make a note of the date,

name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.

- b.** Follow the on-screen instructions to download your selection to the hard drive.

Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

BIOS installation procedures vary. Follow any instructions that appear on the screen after the download is complete. If no instructions appear, follow these steps:

- 1.** Type `file` in the taskbar search box, and then select **File Explorer**.
- 2.** Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
- 3.** Using the hard drive path you recorded earlier, open the folder that contains the update.
- 4.** Double-click the file that has an `.exe` extension (for example, `filename.exe`).

The BIOS installation begins.

- 5.** Complete the installation by following the on-screen instructions.



NOTE: After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

Synchronizing a tablet and keyboard (select products only)


For a tablet with a detachable keyboard, when you attach the tablet to the keyboard and restart the computer, Setup Utility (BIOS) checks to see if the Embedded Controller firmware on the keyboard needs to be synchronized. If so, synchronization begins. If the synchronization is interrupted, a notification screen displays for 10 seconds before the tablet restarts and attempts to synchronize again.



NOTE: The Embedded Controller firmware will synchronize **ONLY** if the tablet or keyboard battery is more than 50% charged, or if your tablet is connected to AC power.

8 Using HP PC Hardware Diagnostics (UEFI) – Windows 10

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

 **NOTE:** To start BIOS on a convertible computer, your computer must be in notebook mode and you must use the keyboard attached to your tablet. The on-screen keyboard, which displays in tablet mode, cannot access BIOS.

To start HP PC Hardware Diagnostics UEFI:


1. Start BIOS:

- Computers or tablets with keyboards:
 - ▲ Turn on or restart the computer, quickly press [esc](#).
- Tablets without keyboards:
 - ▲ Turn on or restart the tablet, and then quickly hold down the volume down button.
 - or –
 - Turn on or restart the tablet, and then quickly hold down the Windows button.

2. Press or tap [f2](#).

The BIOS searches three places for the diagnostic tools, in the following order:


a. Connected USB drive

 **NOTE:** To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 75](#).

b. Hard drive

c. BIOS

3. When the diagnostic tool opens, select the type of diagnostic test you want to run, and then follow the on-screen instructions. On a tablet, press the volume down button to stop a diagnostic test.

 **NOTE:** If you need to stop a diagnostic test on computers or tablets with a keyboard, press [esc](#).

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device

There are two options to download HP PC Hardware Diagnostics to a USB device:

Download the latest UEFI version:

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the HP PC Hardware Diagnostics section, click the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product:

1. Go to <http://www.hp.com/support>, and then select your country. The HP Support page is displayed.
2. Click **Drivers & Downloads**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer, and then select your operating system.
5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

9 Using Setup Utility (BIOS) and HP PC Hardware Diagnostics (UEFI) – Windows 8.1

Using Setup Utility (BIOS)

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility (BIOS) includes settings for the types of devices installed, the startup sequence of the computer, and the amount of system and extended memory.

Starting Setup Utility (BIOS)

 **CAUTION:** Use extreme care when making changes in Setup Utility (BIOS). Errors can prevent the computer from operating properly.

- ▲ Turn on or restart the computer, quickly press `esc`, and then press `F10`.

Updating Setup Utility (BIOS)

Updated versions of Setup Utility (BIOS) may be available on the HP website.

Most BIOS updates on the HP website are packaged in compressed files called *SoftPaqs*.

Some download packages contain a file named `Readme.txt`, which contains information regarding installing and troubleshooting the file.

Determining the BIOS version

To decide whether you need to update Setup Utility (BIOS), first determine the BIOS version on your computer.


BIOS version information (also known as *ROM date* and *System BIOS*) can be accessed from the Start screen by typing `support`, selecting the **HP Support Assistant** app, selecting **My computer**, and then selecting **System Information**, or by using Setup Utility (BIOS).

To use Setup Utility (BIOS):


1. Start Setup Utility (BIOS) (see [Starting Setup Utility \(BIOS\) on page 76](#)).
2. Select **Main**, and then make note of the BIOS version.
3. Select **Exit**, select **Exit Discarding Changes**, and then follow the on-screen instructions.

To check for later BIOS versions, see [Downloading a BIOS update on page 77](#).

Downloading a BIOS update

 **CAUTION:** To reduce the risk of damage to the computer or an unsuccessful installation, download and install a BIOS update only when the computer is connected to reliable external power using the AC adapter. Do not download or install a BIOS update while the computer is running on battery power, docked in an optional docking device, or connected to an optional power source. During the download and installation, follow these instructions:

- Do not disconnect power from the computer by unplugging the power cord from the AC outlet.
- Do not shut down the computer or initiate Sleep.
- Do not insert, remove, connect, or disconnect any device, cable, or cord.

 **NOTE:** If your computer is connected to a network, consult the network administrator before installing any software updates, especially system BIOS updates.


1. From the Start screen, type `support`, and then select the **HP Support Assistant** app.
– or –
From the Windows desktop, click the question mark icon in the taskbar.
2. Click **Updates and tune-ups**, and then click **Check for HP updates now**.
3. Follow the on-screen instructions.
4. At the download area, follow these steps:
 - a. Identify the most recent BIOS update and compare it to the BIOS version currently installed on your computer. If the update is more recent than your BIOS version, make a note of the date, name, or other identifier. You may need this information to locate the update later, after it has been downloaded to your hard drive.
 - b. Follow the on-screen instructions to download your selection to the hard drive.

Make a note of the path to the location on your hard drive where the BIOS update is downloaded. You will need to access this path when you are ready to install the update.

BIOS installation procedures vary. Follow any instructions that appear on the screen after the download is complete. If no instructions appear, follow these steps:

1. From the Start screen, type `file`, and then select **File Explorer**.
– or –
From the Windows desktop, right-click the **Start** button, and then select **File Explorer**.
2. Click your hard drive designation. The hard drive designation is typically Local Disk (C:).
3. Using the hard drive path you recorded earlier, open the folder that contains the update.
4. Double-click the file that has an `.exe` extension (for example, `filename.exe`).

The BIOS installation begins.
5. Complete the installation by following the on-screen instructions.

 **NOTE:** After a message on the screen reports a successful installation, you can delete the downloaded file from your hard drive.

Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

To start HP PC Hardware Diagnostics (UEFI):

1. Turn on or restart the computer, and then quickly press **esc**.
2. Press or tap **f2**.

The BIOS searches 3 places for the diagnostic tools, in the following order:

- a. Connected USB drive



NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device on page 78](#).

- b. Hard drive

- c. Setup Utility (BIOS)

3. When the diagnostic tool opens, use the keyboard arrow keys to select the type of diagnostic test you want to run, and then follow the on-screen instructions.



NOTE: If you need to stop a diagnostic test, press or tap **esc**.

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



NOTE: Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only.

There are two options to download HP PC Hardware Diagnostics to a USB device.

Download the latest UEFI version:

1. Go to <http://www.hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the HP PC Hardware Diagnostics section, click the **Download** link and then select **Run**.

Download any version of UEFI for a specific product:

1. Go to <http://www.hp.com/support>, and then select your country. The HP Support page is displayed.
2. Click **Drivers & Downloads**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

10 Using Setup Utility (BIOS) and System Diagnostics – Ubuntu

Setup Utility, or Basic Input/Output System (BIOS), controls communication between all the input and output devices on the system (such as disk drives, display, keyboard, mouse, and printer). Setup Utility includes settings for the types of peripherals installed, the startup sequence of the computer, and the amount of system and extended memory.



NOTE: Use extreme care when making changes in Setup Utility. Errors can prevent the computer from operating properly.

Starting Setup Utility

- ▲ Turn on or restart the computer. While the “Press the ESC key for Startup Menu” message is displayed in the lower-left corner of the screen, press `esc`. When the Startup Menu is displayed, press `f10`.

Using Setup Utility

Changing the language of Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **System Configuration > Language**, and then press `enter`.
3. Use the arrow keys to select a language, and then press `enter`.
4. When a confirmation prompt with your language selected is displayed, press `enter`.
5. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press `enter`.

Your change takes effect immediately.

Navigating and selecting in Setup Utility

Setup Utility does not support the TouchPad. Navigation and selection are by keystroke.

- To choose a menu or a menu item, use the arrow keys.
- To choose an item in a list or to toggle a field—for example an Enable/Disable field—use either the arrow keys or `f5` and `f6`.
- To select an item, press `enter`.
- To close a text box or return to the menu display, press `esc`.
- To display additional navigation and selection information while Setup Utility is open, press `f1`.

Displaying system information

1. Start Setup Utility.
2. Select the **Main** menu. System information such as the system time and date, and identification information about the computer is displayed.
3. To exit Setup Utility without changing any settings, use the arrow keys to select **Exit > Exit Discarding Changes**, and then press [enter](#).

Restoring factory default settings in Setup Utility

1. Start Setup Utility.
2. Use the arrow keys to select **Exit > Load Setup Defaults**, and then press [enter](#).
3. When the Setup Confirmation is displayed, press [enter](#).
4. To save your change and exit Setup Utility, use the arrow keys to select **Exit > Exit Saving Changes**, and then press [enter](#).

The Setup Utility factory settings take effect when the computer restarts.



NOTE: Your password, security, and language settings are not changed when you restore the factory settings.

Exiting Setup Utility

- To exit Setup Utility and save your changes from the current session:
If the Setup Utility menus are not visible, press [esc](#) to return to the menu display. Then use the arrow keys to select **Exit > Exit Saving Changes**, and then press [enter](#).
- To exit Setup Utility without saving your changes from the current session:
If the Setup Utility menus are not visible, press [esc](#) to return to the menu display. Then use the arrow keys to select **Exit > Exit Discarding Changes**, and then press [enter](#).

Using HP PC Hardware Diagnostics (UEFI)

HP PC Hardware Diagnostics is a Unified Extensible Firmware Interface (UEFI) that allows you to run diagnostic tests to determine whether the computer hardware is functioning properly. The tool runs outside the operating system so that it can isolate hardware failures from issues that are caused by the operating system or other software components.

To start HP PC Hardware Diagnostics UEFI:

1. Turn on or restart the computer, quickly press [esc](#), and then press [f2](#). The BIOS searches three places for the diagnostic tools, in the following order:

- a. Connected USB drive



NOTE: To download the HP PC Hardware Diagnostics (UEFI) tool to a USB drive, see [Downloading HP PC Hardware Diagnostics \(UEFI\) to a USB device](#) on page 59.

- b. Hard drive
- c. BIOS

2. When the diagnostic tool opens, use the keyboard arrow keys to select the type of diagnostic test you want to run, and then follow the on-screen instructions.

Downloading HP PC Hardware Diagnostics (UEFI) to a USB device



NOTE: Instructions for downloading HP PC Hardware Diagnostics (UEFI) are provided in English only and you must use a Windows computer to download and create the HP UEFI support environment because only .exe files are offered.

There are two options to download HP PC Hardware Diagnostics to a USB device:

Download the latest UEFI version:

1. Go to <http://hp.com/go/techcenter/pcdiags>. The HP PC Diagnostics home page is displayed.
2. In the HP PC Hardware Diagnostics section, click the **Download** link, and then select **Run**.

Download any version of UEFI for a specific product:

1. Go to <http://www.hp.com/support>, and then select your country. The HP Support page is displayed.
2. Click **Drivers & Downloads**.
3. In the text box, enter the product name, and then click **Go**.

– or –

Click **Find Now** to let HP automatically detect your product.

4. Select your computer model, and then select your operating system.
5. In the **Diagnostic** section, follow the on-screen instructions to select and download the UEFI version you want.

11 Specifications

Computer specifications

	Metric	U.S.
Dimensions		
Width	34.54 cm	13.60 in
Depth	24.25 cm	9.55 in
Height (front to back)	2.5 cm	.98 in
Weight	1.96 or 2.10 kg (depending on configuration)	4.33 or 4.63 lb (depending on configuration)
Input power		
Operating voltage and current	19.5 V dc @ 3.33 A – 65 W	
	19.5 V dc @ 2.31 – 45 W (select models only)	
Temperature		
Operating	5°C to 35°C	41°F to 95°F
Nonoperating	-20°C to 60°C	-4°F to 140°F
Relative humidity (noncondensing)		
Operating	10% to 90%	
Nonoperating	5% to 95%	
Maximum altitude (unpressurized)		
Operating	-15 m to 3,048 m	-50 ft to 10,000 ft
Nonoperating	-15 m to 12,192 m	-50 ft to 40,000 ft
NOTE: Applicable product safety standards specify thermal limits for plastic surfaces. The device operates well within this range of temperatures.		

12 Backing up, restoring, and recovering – Windows 10

This chapter provides information about the following processes. The information in the chapter is standard procedure for most products.


- Creating recovery media and backups
- Restoring and recovering your system

For additional information, refer to the HP support assistant app.

- ▲ Type `support` in the taskbar search box, and then select the **HP Support Assistant** app.

– or –

Click the question mark icon in the taskbar.

 **IMPORTANT:** If you will be performing recovery procedures on a tablet, the tablet battery must be at least 70% charged before you start the recovery process.


IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning any recovery process.

Creating recovery media and backups

The following methods of creating recovery media and backups are available on select products only. Choose the available method according to your computer model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see [Creating HP Recovery media \(select products only\) on page 84](#). For information on the recovery options that are available using the recovery media, see [Using Windows Tools on page 85](#).
- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Recovering using HP Recovery Manager on page 86](#).

 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

Creating HP Recovery media (select products only)

If possible, check for the presence of the Recovery partition and the Windows partition. From the **Start** menu, select **File Explorer**, and then select **This PC**.

- If your computer does not list the Windows partition and the Recovery partition, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

You can use Windows tools to create system restore points and create backups of personal information, see *Using Windows tools on page 61*.

- If your computer does list the Recovery partition and the Windows partition, you can use HP Recovery Manager to create recovery media after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.
 - Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
 - HP Recovery Manager examines the computer and determines the required storage capacity for the media that will be required.
 - To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.
 - If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub. If you cannot create DVD media yourself, you can obtain recovery discs for your computer from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.
 - Be sure that the computer is connected to AC power before you begin creating the recovery media.
 - The creation process can take an hour or more. Do not interrupt the creation process.
 - If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:



IMPORTANT: For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 86](#).

Using Windows Tools

You can create recovery media, system restore points, and backups of personal information using Windows tools.



NOTE: If storage is 32 GB or less, Microsoft System Restore is disabled by default.

For more information and steps, see the Get started app.

- ▲ Select the **Start** button, and then select the **Get started** app.

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:



IMPORTANT: Not all methods are available on all products.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see the Get started app.
 - ▲ Select the **Start** button, and then select the **Get started** app.
- If you need to correct a problem with a preinstalled application or driver, use the Reinstall drivers and/or applications option (select products only) of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ Type `recovery` in the taskbar search box, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select products only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 86](#). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 84](#).
- On select products, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 86](#).
- On select products, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.


For more information, see Removing the [Removing the HP Recovery partition \(select products only\) on page 88](#).

Recovering using HP Recovery Manager


HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select products only). If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 84](#).

What you need to know before you get started

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.

 **IMPORTANT:** Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.

- To use the Factory Reset option (select products only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select products only\) on page 84](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

 **IMPORTANT:** HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you want to retain.

Using HP Recovery media, you can choose from one of the following recovery options:

 **NOTE:** Only the options available for your computer display when you start the recovery process.


- **System Recovery**—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- **Factory Reset**—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select products only) allows System Recovery only.

Using the HP Recovery partition (select products only)

The HP Recovery partition allows you to perform a system recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can be used only if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

 **IMPORTANT:** For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps (select products only).

1. Type `recovery` in the taskbar search box, select **Recovery Manager**, and then select **HP Recovery Environment**.

– or –

For computers or tablets with keyboards attached, press **f11** while the computer boots, or press and hold **f11** as you press the power button.

For tablets without keyboards:

Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f11**.

– or –


Turn on or restart the tablet, and then quickly hold down the Windows button; then select **f11**.

2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the HP Recovery media, and then restart the computer.


 **NOTE:** If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 88](#).

3. Follow the on-screen instructions.

Changing the computer boot order

If your computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection to an optical drive or a USB flash drive.

To change the boot order:

 **IMPORTANT:** For a tablet with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. Insert the HP Recovery media.
2. Access BIOS:

For computers or tablets with keyboards attached:

- ▲ Turn on or restart the computer or tablet, quickly press **esc**, and then press **f9** for boot options.

For tablets without keyboards:

- ▲ Turn on or restart the tablet, and then quickly hold down the volume down button; then select **f9**.


– or –


Turn on or restart the tablet, and then quickly hold down the Windows button; then select **f9**.

3. Select the optical drive or USB flash drive from which you want to boot.
4. Follow the on-screen instructions.

Removing the HP Recovery partition (select products only)

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.

 **IMPORTANT:** After you remove the HP Recovery partition, you will not be able to perform System Recovery or create HP recovery media from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select products only\) on page 84](#).

 **NOTE:** The Remove Recovery Partition option is only available on products that support this function.

Follow these steps to remove the HP Recovery partition:

1. Type `recovery` in the taskbar search box, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.

13 Backing up, restoring, and recovery – Windows 8.1

This chapter provides information about the following processes. The information in the chapter is standard procedure for most models.

- Creating recovery media and backups
- Restoring and recovering your system

For additional information, refer to Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.

- or -


From the Windows desktop, click the question mark icon in the taskbar.

Creating recovery media and backups


The following methods of creating recovery media and backups are available on select models only. Choose the available method according to your computer model.

- Use HP Recovery Manager to create HP Recovery media after you successfully set up the computer. This step creates a backup of the HP Recovery partition on the computer. The backup can be used to reinstall the original operating system in cases where the hard drive is corrupted or has been replaced. For information on creating recovery media, see [Creating HP Recovery media \(select models only\) on page 89](#). For information on the recovery options that are available using the recovery media, see [Recovering using HP Recovery Manager on page 91](#).
- Use Windows tools to create system restore points and create backups of personal information.

For more information, see [Using Windows tools on page 90](#).

 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.


Creating HP Recovery media (select models only)

 **IMPORTANT:** If your computer does not list a Create recovery media option, you can obtain recovery media for your system from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.

HP Recovery Manager is a software program that allows you to create recovery media (using either a flash drive or a set of DVDs) after you successfully set up the computer. HP Recovery media can be used to perform system recovery if the hard drive becomes corrupted. System recovery reinstalls the original operating system and software programs that were installed at the factory and then configures the settings for the programs. HP Recovery media can also be used to customize the system or restore the factory image if you replace the hard drive.

- Only one set of recovery media can be created. Handle these recovery tools carefully, and keep them in a safe place.
- HP Recovery Manager examines the computer and determines the required storage capacity for the media that will be required.
- To create recovery discs, your computer must have an optical drive with DVD writer capability, and you must use only high-quality blank DVD-R, DVD+R, DVD-R DL, or DVD+R DL discs. Do not use rewritable discs such as CD±RW, DVD±RW, double-layer DVD±RW, or BD-RE (rewritable Blu-ray) discs; they are not compatible with HP Recovery Manager software. Or, instead, you can use a high-quality blank USB flash drive.
- If your computer does not include an integrated optical drive with DVD writer capability, but you would like to create DVD recovery media, you can use an external optical drive (purchased separately) to create recovery discs. If you use an external optical drive, it must be connected directly to a USB port on the computer; the drive cannot be connected to a USB port on an external device, such as a USB hub. If you cannot create DVD media yourself, you can obtain recovery discs for your computer from HP. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information on the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.
- Be sure that the computer is connected to AC power before you begin creating the recovery media.
- The creation process can take an hour or more. Do not interrupt the creation process.
- If necessary, you can exit the program before you have finished creating all of the recovery DVDs. HP Recovery Manager will finish burning the current DVD. The next time you start HP Recovery Manager, you will be prompted to continue.

To create HP Recovery media:

 **IMPORTANT:** For tablets with a detachable keyboard, connect the keyboard to the keyboard dock before beginning these steps.

1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Create recovery media**, and then follow the on-screen instructions.

If you ever need to recover the system, see [Recovering using HP Recovery Manager on page 91](#).

Using Windows tools

You can use Windows tools to create system restore points and create backups of personal information.

 **NOTE:** If storage is 32 GB or less, Microsoft System Restore is disabled by default.

For more information and steps, see Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.

Restore and recovery

There are several options for recovering your system. Choose the method that best matches your situation and level of expertise:

 **IMPORTANT:** Not all methods are available on all models.

- Windows offers several options for restoring from backup, refreshing the computer, and resetting the computer to its original state. For more information see Help and Support.

- ▲ From the Start screen, type `help`, and then select **Help and Support**.
- If you need to correct a problem with a preinstalled application or driver, use the Drivers and Applications Reinstall option of HP Recovery Manager to reinstall the individual application or driver.
 - ▲ From the Start screen, type `recovery`, select **HP Recovery Manager**, select **Reinstall drivers and/or applications**, and then follow the on-screen instructions.
- On select models, if you want to reset your computer using a minimized image, you can choose the HP Minimized Image Recovery option from the HP Recovery partition or HP Recovery media. Minimized Image Recovery installs only drivers and hardware-enabling applications. Other applications included in the image continue to be available for installation through the Reinstall drivers and/or applications option in HP Recovery Manager.

For more information, see [Recovering using HP Recovery Manager on page 91](#).

- If you want to recover the Windows partition to original factory content, you can choose the System Recovery option from the HP Recovery partition (select models only) or use the HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 91](#). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 89](#).
- On select models, if you want to recover the computer's original factory partition and content, or if you have replaced the hard drive, you can use the Factory Reset option of HP Recovery media. For more information, see [Recovering using HP Recovery Manager on page 91](#).
- On select models, if you want to remove the recovery partition to reclaim hard drive space, HP Recovery Manager offers the Remove Recovery Partition option.

For more information, see [Removing the HP Recovery partition \(select models only\) on page 93](#).

Recovering using HP Recovery Manager

HP Recovery Manager software allows you to recover the computer to its original factory state by using the HP Recovery media that you either created or that you obtained from HP, or by using the HP Recovery partition (select models only). If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 89](#).

What you need to know before you get started

- HP Recovery Manager recovers only software that was installed at the factory. For software not provided with this computer, you must either download the software from the manufacturer's website or reinstall the software from the media provided by the manufacturer.



IMPORTANT: Recovery through HP Recovery Manager should be used as a final attempt to correct computer issues.

- HP Recovery media must be used if the computer hard drive fails. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 89](#).
- To use the Factory Reset option (select models only), you must use HP Recovery media. If you have not already created recovery media, see [Creating HP Recovery media \(select models only\) on page 89](#).
- If your computer does not allow the creation of HP Recovery media or if the HP Recovery media does not work, you can obtain recovery media for your system from support. See the *Worldwide Telephone Numbers* booklet included with the computer. You can also find contact information from the HP website. Go to <http://www.hp.com/support>, select your country or region, and follow the on-screen instructions.



IMPORTANT: HP Recovery Manager does not automatically provide backups of your personal data. Before beginning recovery, back up any personal data you want to retain.

Using HP Recovery media, you can choose from one of the following recovery options:



NOTE: Only the options available for your computer display when you start the recovery process.

- System Recovery—Reinstalls the original operating system, and then configures the settings for the programs that were installed at the factory.
- Minimized Image Recovery (select models only)—Reinstalls the operating system and all hardware-related drivers and software, but not other software applications.
- Factory Reset—Restores the computer to its original factory state by deleting all information from the hard drive and re-creating the partitions. Then it reinstalls the operating system and the software that was installed at the factory.

The HP Recovery partition (select models only) allows System Recovery and, on select models, Minimized Image Recovery.

Using the HP Recovery partition (select models only)

The HP Recovery partition allows you to perform a system recovery or, on select models, minimized image recovery without the need for recovery discs or a recovery USB flash drive. This type of recovery can be used only if the hard drive is still working.

To start HP Recovery Manager from the HP Recovery partition:

1. From the Start screen, type `recovery`, select **Recovery Manager**, and then select **HP Recovery Environment**.
- or -
Press **f11** while the computer boots, or press and hold **f11** as you press the power button.
2. Select **Troubleshoot** from the boot options menu.
3. Select **Recovery Manager**, and then follow the on-screen instructions.

Using HP Recovery media to recover

You can use HP Recovery media to recover the original system. This method can be used if your system does not have an HP Recovery partition or if the hard drive is not working properly.

1. If possible, back up all personal files.
2. Insert the HP Recovery media, and then restart the computer.



NOTE: If the computer does not automatically restart in HP Recovery Manager, change the computer boot order. See [Changing the computer boot order on page 92](#).

3. Follow the on-screen instructions.

Changing the computer boot order


If your computer does not restart in HP Recovery Manager, you can change the computer boot order, which is the order of devices listed in BIOS where the computer looks for startup information. You can change the selection to an optical drive or a USB flash drive.

To change the boot order:

1. Insert the HP Recovery media.
2. Turn on or restart the computer or tablet, quickly press [esc](#), and then press [f9](#) for boot options.
3. Select the optical drive or USB flash drive from which you want to boot.
4. Follow the on-screen instructions.

Removing the HP Recovery partition (select models only)

HP Recovery Manager software allows you to remove the HP Recovery partition to free up hard drive space.

 **IMPORTANT:** After you remove the HP Recovery partition, you can no longer use the Windows Refresh option or the Windows option to remove everything and reinstall Windows. In addition, you will not be able to perform System Recovery or Minimized Image Recovery from the HP Recovery partition. So before you remove the Recovery partition, create HP Recovery media; see [Creating HP Recovery media \(select models only\) on page 89](#).

Follow these steps to remove the HP Recovery partition:


1. From the Start screen, type `recovery`, and then select **HP Recovery Manager**.
2. Select **Remove Recovery Partition**, and then follow the on-screen instructions.


14 Backing up, restoring, and recovering – Ubuntu

Recovery after a system failure is as good as your most recent backup. As you add new software and data files, you should continue to back up your system on a regular basis to maintain a reasonably current backup.

Performing a system recovery

The Deja Dup Restore Tool allows you to repair or restore the computer to its original factory state. You can create an image restore DVD using an optional external DVD±RW optical drive. You can also create a restore image on a USB storage device.

 **CAUTION:** Using Restore completely erases hard drive contents and reformats the hard drive. All files you have created and any software installed on the computer are permanently removed. The recovery tool reinstalls the original operating system and programs and drivers that were installed at the factory. Software, drivers, and updates not installed at the factory must be manually reinstalled. Personal files must be restored from a backup.

 **NOTE:** HP recommends that you create the image restore in the event of a system failure.

Creating the restore DVDs

The restore creation software creates a set of system restore discs using blank, writable DVDs (DVD-R or DVD+R). HP recommends using blank DVD+R discs from a manufacturer you trust, because these recovery DVDs are so important. You need approximately 3 blank DVD+R discs. The program states how many discs are needed at the beginning of the process.


To create restore DVDs:

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup**.
2. Select **Storage** from the panel on the left side of the window, click the down-arrow next to **Backup Location**, and select the DVD from the drop-down list.
3. Select **Overview** from the panel on the left side of the window, and then click **Back Up Now**.
4. Follow the on-screen instructions.

Creating a restore image on a USB device

 **NOTE:** Be sure AC power is connected to the computer you begin.

Verify the exact amount of free space on your storage device before you begin the creation process. For most models, you will need at least 8 GB of free space on the storage device. However, depending on the drivers and software installed on your computer, you may need slightly more than 8 GB of space. **HP recommends that you use a 16 GB device or above for best results.**

 **IMPORTANT:** Remember to insert your USB device into the USB port on the computer before starting this procedure.

To create the restore image:

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup**.
2. Select **Storage** from the panel on the left side of the window, click the down-arrow next to **Backup location**, and select the USB device from the drop-down list.



NOTE: If the USB device is not listed in the drop-down list for Backup Location, select **Local Folder**, and then click the **Choose Folder** button. Select the USB device from the panel on the left side of the **Choose Folder** window, and click **OK**.

3. Select **Overview** from the panel on the left side of the window, and then click **Backup Now**.
4. Follow the on-screen instructions.

Performing recovery using the restore media



NOTE: The following procedure uses the F11 BIOS Recovery feature to perform the recovery.

1. If possible, back up all personal files.
2. Shut down the computer.
3. Be sure the restore DVD or USB device is connected to the computer.
4. Restart the computer.
5. Using the arrow keys, select **Recovery**, and then press [enter](#).
6. Follow the on-screen instructions.



NOTE: If you are unable to boot (start up) your computer with the primary operating system, and you did not create a system recovery disc, you must purchase an *Ubuntu Operating System* DVD to reinstall the operating system. For additional information, refer to the *Worldwide Telephone Numbers* booklet for more information.

Backing up your information

You should back up your computer files on a regular schedule to maintain a current backup. You can manually back up your information to an optional external drive, a network drive, discs, or the Ubuntu One website. Back up your system at the following times:

- At regularly scheduled times
- Before the computer is repaired or restored
- Before you add or modify hardware or software

To back up your home directory files to the Ubuntu website using the Deja Dup Backup Tool:



NOTE: Before you back up your information, be sure you have designated a location to save the backup files.

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup** icon.
2. Select **Folders** from the panel on the left side of the window, and beneath **Folders to back up**, select the folders to back up.

3. Select **Storage** from the panel on the left side of the window, click the down-arrow next to **Backup Location**, and select **Ubuntu One** from the drop-down list.
4. Select **Overview** from the panel on the left side of the window, and then click **Back Up Now**.



NOTE: The first time you backup your files to Ubuntu One, you will need to create an account to sign into Ubuntu One. Enter your email address and password into the account sign-in boxes and follow the on-screen instructions to complete the sign-in process.

To restore backup files:

1. Click the **System menu** icon at the far right of the top panel, and then click **System Settings > Backup** icon.
2. Click **Restore**, select the location of the backup files and the folder name, and then click **Forward**.
3. Under **Restore from When?**, select the date of the files to be restored and click **Forward**.
4. Select the location and folder where the files are to be restored and click **Forward**.
5. Follow the on-line instructions.
6. Click **Restore** to start restoring the files, or click **Cancel** to cancel the operation.



NOTE: You may also back up to cloud storage services provided by various companies. For a small fee, they will keep your backup for you. A cloud service is recommended since it is an easy way to keep your backups off-site and safe from any disaster.

15 Power cord set requirements

The wide-range input feature of the computer permits it to operate from any line voltage from 100 to 120 volts AC, or from 220 to 240 volts AC.

The 3-conductor power cord set included with the computer meets the requirements for use in the country or region where the equipment is purchased.

Power cord sets for use in other countries and regions must meet the requirements of the country or region where the computer is used.

Requirements for all countries

The following requirements are applicable to all countries and regions:

- The length of the power cord set must be at least **1.0 m** (3.3 ft) and no more than **2.0 m** (6.5 ft).
- All power cord sets must be approved by an acceptable accredited agency responsible for evaluation in the country or region where the power cord set will be used.
- The power cord sets must have a minimum current capacity of 10 amps and a nominal voltage rating of 125 or 250 V AC, as required by the power system of each country or region.
- The appliance coupler must meet the mechanical configuration of an EN 60 320/IEC 320 Standard Sheet C13 connector for mating with the appliance inlet on the back of the computer.

Requirements for specific countries and regions

Country/region	Accredited agency	Applicable note number
Australia	EANSW	1
Austria	OVE	1
Belgium	CEBC	1
Canada	CSA	2
Denmark	DEMKO	1
Finland	FIMKO	1
France	UTE	1
Germany	VDE	1
Italy	IMQ	1
Japan	METI	3
The Netherlands	KEMA	1
Norway	NEMKO	1
The People's Republic of China	COC	5
South Korea	EK	4

Country/region	Accredited agency	Applicable note number
Sweden	SEMKO	1
Switzerland	SEV	1
Taiwan	BSMI	4
The United Kingdom	BSI	1
The United States	UL	2

1. The flexible cord must be Type H05VV-F, 3-conductor, 1.0-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
2. The flexible cord must be Type SPT-3 or equivalent, No. 18 AWG, 3-conductor. The wall plug must be a two-pole grounding type with a NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration.
3. The appliance coupler, flexible cord, and wall plug must bear a “T” mark and registration number in accordance with the Japanese Dentori Law. The flexible cord must be Type VCT or VCTF, 3-conductor, 1.00-mm² conductor size. The wall plug must be a two-pole grounding type with a Japanese Industrial Standard C8303 (7 A, 125 V) configuration.
4. The flexible cord must be Type RVV, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.
5. The flexible cord must be Type VCTF, 3-conductor, 0.75-mm² conductor size. Power cord set fittings (appliance coupler and wall plug) must bear the certification mark of the agency responsible for evaluation in the country or region where it will be used.

16 Recycling

When a non-rechargeable or rechargeable battery has reached the end of its useful life, do not dispose of the battery in general household waste. Follow the local laws and regulations in your area for battery disposal.

HP encourages customers to recycle used electronic hardware, HP original print cartridges, and rechargeable batteries. For more information about recycling programs, see the HP Web site at <http://www.hp.com/recycle>.

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